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Established 1847 Pioneer of the Gas Industry

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NEW YORK, SATURDAY, APRIL 9, 1927

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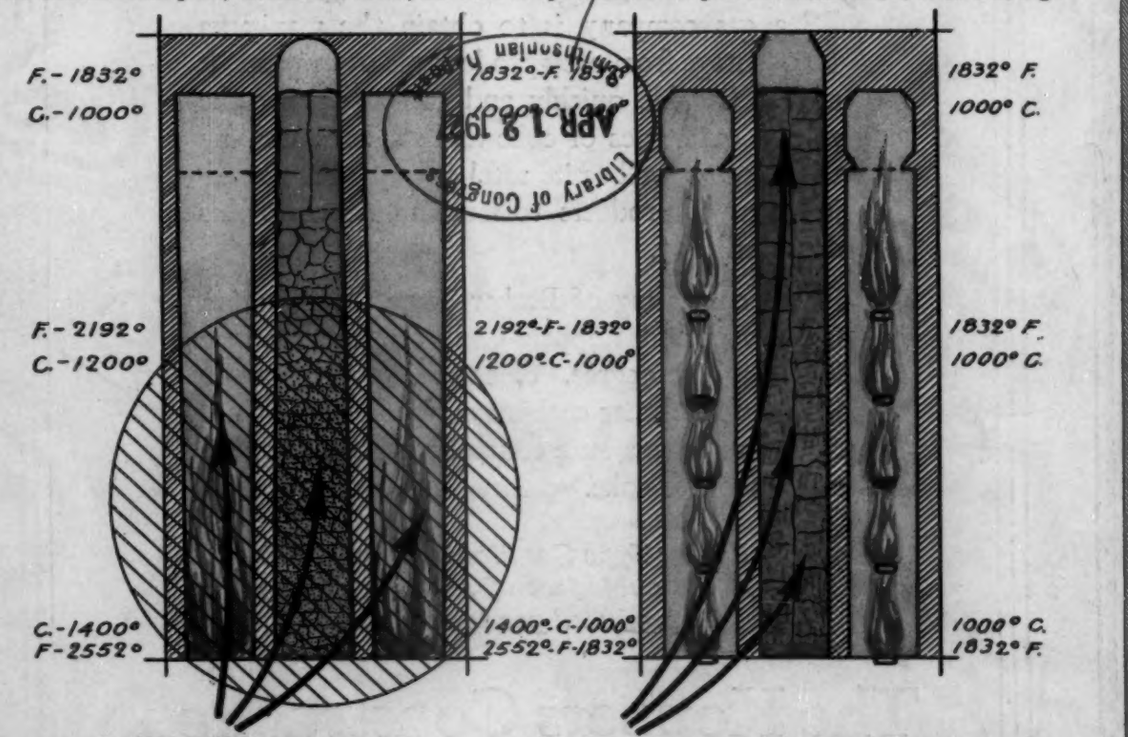


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*—and then—*

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Advertising Index, page 87 Index to Contents, page 4

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BY-PRODUCT COKE AND GAS OVENS

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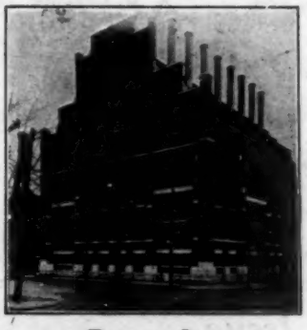
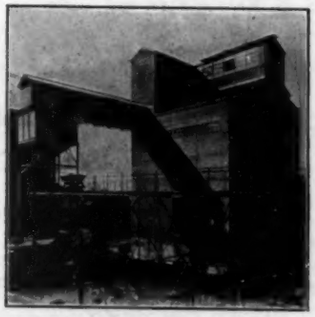
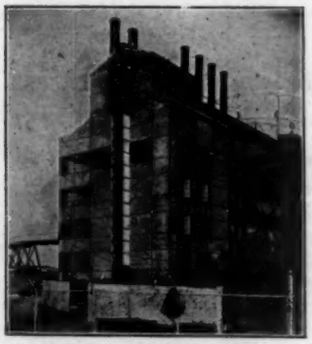


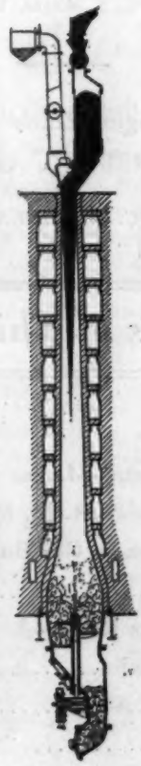
Toronto, Ont.
5,000,000 cu. ft. per day

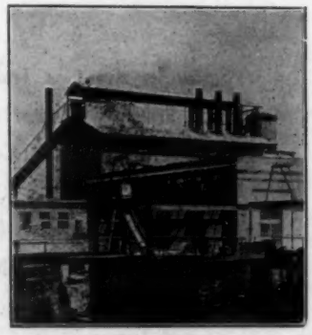


Fargo, N. D.
800,000 cu. ft. per day



Portland, Me., 2nd Plant
750,000 cu. ft. per day





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| | |
|---|---|
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| Toronto, Ont. | 600,000 cu. ft. |
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| Pawtucket, R. I. | 1,060,000 cu. ft. |
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SIXTY-SEVENTH YEAR

*Published Weekly by American Gas Light Journal, Inc., 53 Park Place, New York, N. Y.*

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# Corrosion in the Gas Industry

## Classification and prevention

*Ismar Ginsberg*
Associate Editor

IN the previous article on this subject we discussed the various theories of corrosion and the relationship between the iron or steel structure and composition themselves with the extent to which the metal will rust or oxidize. It was also mentioned that the condition of the metal was of importance but not of the same significance by any means as the external factors of which the metal is subjected and which bring about its corrosion. Thus while a piece of metal might be in a very good condition to resist corrosion, when it is not protected from these influences, corrosion will nevertheless ensue in time anyway, while a piece of metal might be of such composition and of such structure as to be peculiarly susceptible to corrosion and might still be protected from rusting or oxidizing and remain intact for a long time by coating it with suitable and adequate rust-protective films and coatings of various sorts.

It thus follows that the most important consideration in the corrosion problem is not so much the metal as the external influences and factors and it is with these that we are first concerned in this article.

### Division of Corrosive Influences

Speller in his book on Corrosion aptly divides these external influences into four different classes. In the first place there are those factors or influences which affect the amount of dissolved oxygen that reaches the surface of the metal. This is important for oxygen is necessary substance in the corrosion phenomenon. Then there are those factors which are concerned with the amount of other substances dissolved in the corroding liquids, wherein the main effect is not based on the supply of oxygen. Then there are the factors which influence the localization of corrosion and the amount of pitting, and finally there are various miscellaneous factors. We have already discussed the factors belonging to the first class, and in carrying out this discussion we must again emphasize the fact that unless the gas engineer understands the theories of corrosion, he cannot hope to combat it successfully and make an intelligent choice of the many products that are offered to him as being the best anti-corrosion agent in existence.

When metal, that is of course iron for our discussion is limited to this metal entirely, is placed in contact with pure water containing oxygen, corrosion will take place. But the average gas works will never have at its disposal pure water for any purpose in the manufacturing operations. It will always be a natural water which contains small but potent quantities of dissolved salts, etc. The question therefore naturally arises as to what effect these dissolved substances have on the corrosion phenomenon. The dissolved substances may be inorganic salts but there are also impurities in the water of organic origin as well as gases and suspended matter. Some of these substances are dissolved out of the atmosphere by rain and others are dissolved from the earth which comes in contact with the water while still others are derived from industrial wastes, sewage and the like. It is important to understand what these substances are before their effect on corrosion can be appreciated.

### Origin of Impurities in Water

The falling rain dissolves gases from the air. These gases are not only nitrogen and oxygen, which form practically the entire mass of air, but also small amounts of other gases, such as carbon dioxide, sulphur oxides, nitrogen oxides, ammonia, dust, etc. It has been mentioned in the previous article that atmospheric corrosion takes place and is dependant on the nature of the water film, invisible at times but present nevertheless, formed on the metal surface. This film of water will contain dissolved substances, and in industrial regions the water will be decidedly acid due to the presence of sulphur acids. It is therefore apparent that the nature of the dissolved substance is of considerable importance, for acids will promote the corrosion phenomena. The water may also contain hydrogen sulphide which may be dissolved from the air or accumulated by the water on coming in contact with sewage and the like. Sulphuretted hydrogen is an accelerator of corrosion.

This is a matter of special importance to the gas engineer for the sulphuretted hydrogen present in gas that is being distributed through mains is a special factor in promoting the corrosion of the gas mains. The sulphuretted hydrogen reacts with oxygen to form sulphuric acid which eats away the metal. It is an interesting fact, proven by experience in distributing gas containing sulphuretted hydrogen, that the gas at the end of the main contains less of this impurity than the gas at the beginning of the main. It is evident that the iron of the main has acted as a purifier of the gas with the result that corrosion takes place. The extent of this corrosion is rather great and it is something which the gas engineer must guard against. It is also interesting to mention here that as long as the gas contained oily ingredients of high illuminating power, the corrosion of the interior of the mains was not very extensive, for the oily hydrocarbons precipitated on the surface of the metal formed a protective covering which effectually prevented the action of the corrosive ingredients in the gas.

The action of sulphuretted hydrogen and other ingredients of the gas, that is being distributed, on the metal of the gas mains is a very interesting and important subject to the distribution engineer and we will return to a more detailed discussion of this subject in a later article of this series.

### Other Corrosive Compounds

There are other corrosive compounds and substances which are found in solution which corrode the metal and the gas engineer must also understand what these are for, while they may not be contained in the gas itself, they will be met with at times around the gas works. It has been mentioned that the natural water that is used in every industrial plant contains electrolytes which have an accelerating action on the corrosion phenomena. This refers to the acids, alkalies and salts which are dissolved out of the earth and minerals with which the water comes in contact or which are derived from sewage and plant wastes with which the water may be contaminated. The exact manner in which these substances exert their action is quite a complicated theoretical and experimental study but of no special interest to us. The net conclusion from these studies has been that the presence of these substances accelerate the corrosion process and this is enough for the gas engineer to know about this particular phase of the problem.

Before concluding this part of our discussion it should be mentioned that the presence of organic matter in the water also has an effect on the corrosion process, in that organic matter will reduce the amount of oxygen in the water. It should also be stated that there is a form of bacteria present in water which causes the deposition of iron from solution. This of course disturbs the equilibrium and has therefore an indirect effect in promoting the corrosion process.

It has been pointed out that the presence of dissimilar substances in the metal will accelerate the corrosion mechanism. Localized corrosion then ensues, or pitting, as it is sometimes known. This is due to the galvanic action that is created when the two dissimilar substances come in contact with natural waters which contain more or less electrolytes. A veritable electric battery is formed.

### Water-Line Corrosion

A particularly important kind of corrosion—that is, from the standpoint of the gas engineer—is water-line corrosion. This refers to the action that takes place at the surface of contact between the metal and the water level in the tank holder cup or the like. Corrosion is always accelerated at this point. There have been a number of explanations of this phenomenon, but the one that appears to be most reliable is the galvanic theory or localization of corrosion due to anodic and cathodic conditions just at the water line and immediately below it.

Mention must also be made of the effect of stray currents in promoting the corrosion of metals, a subject which has received the serious attention of the gas engineer for some time past. Distribution systems are very apt to be affected in this manner, especially when they are laid in proximity to electrical distributing cables. This is again a subject which we must leave for special consideration in another article of this series.

### Other External Factors

There are still a number of other important external factors which control or influence the corrosion of iron. One of these is light, which has been said to possess corrosion accelerating properties. This is a question that is open to argument, although the Bureau of Standards has carried out certain experiments which appeared to indicate that the ultra violet light rays act in this manner.

The duration of the exposure of the metal to the corroding influence is of course an important matter. Changes in the surface condition of the metal may affect the rate at which corrosion takes place. Mention should also be made of the action of steam in the absence of oxygen. The steam attacks the iron to a very slight extent, however.

### Classification of Corrosion

It is evident to the reader that there are different kinds of corrosion. A classification of the various corrosion processes is therefore of considerable value in studying this entire subject. Speller has classed corrosion processes into five separate categories. Thus in the first place there is atmospheric corrosion, then underwater corrosion, underground corrosion, chemical corrosion and finally corrosion by electrolysis. The gas engineer is interested in all of these, although, to be sure, his interest is stronger in some than in others.

The commonest form of corrosion is atmospheric corrosion, which refers to the corrosion that the metal suffers by coming in contact with the air, or, rather, the oxygen in the air, in the presence of moisture. This does not mean that the metal is constantly moist, for it is wetted and dried alternately. This is the type of corrosion to which the many

structures around the gas works are subjected to, and it is claimed that at least eighty per cent of steel in use today undergoes atmospheric corrosion.

The second class is underground corrosion. This refers to the corrosion of metal that is buried in the ground and is limited just to ordinary corrosion without the interference of stray currents. The gas engineer is, of course, very much interested in this type of corrosion, for all his distribution system is subjected to it. There are many different factors which affect the mechanism of the underground corrosion phenomenon.

### Under-Water Corrosion

Thirdly, there is underwater corrosion, which is somewhat similar to the underground corrosion. The gas engineer is somewhat interested in this form of corrosion, for the holder lifts are subjected to this sort of corrosion while they are under water in the holder cups. This also refers to the corrosion that ensues in boilers and, in fact, in all iron that is submerged below water.

In the fourth place, there is corrosion by chemicals. This is brought about by acids, salts, bases and other chemicals which are found around chemical plants. The gas engineer is not so much concerned with this form of corrosion, for the chemicals commonly used around the gas works are not corroding substances. Nevertheless, if the gas works go into the manufacture of sulphate of ammonia from the ammonia recovered in the purification of gas, this form of corrosion will assume greater importance, due to the fact that sulphuric acid, a highly corrosive chemical, will have to be used to manufacture the sulphate.

The fifth and final type of corrosion is that which is brought about by the action of stray current. This is manifestly a type of corrosion in which the gas industry is vitally interested.

### Corrosion in the Gas Industry

The gas industry is accordingly in a no better, and in certain respects far worse, condition than other industries as far as the seriousness of the corrosion problem is concerned. Its overhead structures are subject to atmospheric corrosion and it possesses plenty of these in addition to the gas holder, which is so prominent a feature of the gas works. Furthermore, it has machines and structures as well which are in contact with water, either entirely submerged all the time, or partially submerged for part of the time. It possesses extensive underground distribution systems which are subjected to soil corrosion and to the action of stray currents which easily find their way to the gas mains, in that they are so widely distributed throughout the territory served by the gas company that it is hard for them to escape contact with any stray current that may be seeking a path of lesser resistance along which to flow.

### Prevention of Corrosion

The important phase of the problem, as far as industry is concerned, and also as far as the gas industry is concerned, is the prevention of the corrosion of the metal. It has been said that an entire industry has practically been founded on this attempt to preserve the iron, and this statement may be amplified to the effect that there is more than a single industry which is concerned to a considerable degree with the prevention of corrosion. We are therefore ready now to discuss the prevention of corrosion, and in carrying out this discussion it is necessary to mention here that we will be merely concerned with the nature, properties and usefulness of the various prepared products that are recommended for this purpose, which products may of course be used for other purposes besides corrosion protection in the gas industry. On the other hand, we shall also be interested in developing further the individual classes of corrosion as far as they apply only to the gas industry.

### Atmospheric Corrosion in Gas Industry

We shall first be concerned with the corrosion of metal structures in the gas works that are exposed to the atmosphere. It will often happen that those structures that are exposed to external corrosion are also subjected to internal corrosion. This refers, for instance, to the most prominent structure in the gas works, the gas holder. This apparatus is subject to external corrosion and also to underwater corrosion in the portion of the lifts that come in contact with the water in the cups, and also to the internal corrosive action of the chemically active gases in the manufactured coal gas, etc. It will, however, be necessary to consider each kind of corrosion by itself and thus the holder will appear a number of times in our discussion of the corrosion of metal in the gas works and in the gas industry.

Iron corrodes in the atmosphere due to the presence of oxygen and moisture. It is therefore to be expected that iron will corrode less in dry than in moist climates. There does not have to be visible moisture on the metal surface, for there is nevertheless moisture in contact with the metal when corrosion occurs. It must be remembered that moisture is, after all, the controlling factor in atmospheric corrosion, no matter what other corrosive ingredients might be present in the air. If moisture is present the corrosive action of such gases as sulphur dioxide, sulphuretted hydrogen and the like are more rapid than in dry air. In large cities, where the atmosphere contains comparatively large proportions of dust and solid matter, this will be deposited as well on the metallic surfaces, particularly such a large surface as that represented by the top of holder. It is very likely in certain cases that this deposit will accelerate the corrosion due to the fact that it will place a dissimilar substance in contact with the iron with the formation of concentration cells.

### Composition of Metal

It has also been pointed out that the composition of the metal has some effect on general corrosion and it sometimes has a very marked effect in atmospheric corrosion. The substances which are important in this connection are sulphur, nickel, chromium and copper. It has been held that the degree of purity in the metal has an effect on the corrosion phenomenon. Thus pure iron was tested by the American Society of Testing Materials against

wrought iron or steel, and it was found that the pure iron did not give any more service than the others. As far as the ingredients of the metal are concerned, the one that is most important in its accelerating action is sulphur.

Preventing the corrosion of iron exposed to external influence is carried in an artificial manner. What is meant is simply that a coating of some sort or other is applied to the surface of the metal. This means artificial protection. There is, however, natural protective coatings which are formed over the surface of the metal, and which resists the further action of the corroding influences. Thus it is known that such metals as bronze will form a coating on the surface which will effectually protect the underlying metal from further corrosion. Steel which contains copper will form a film of rust, which is hard and dense and which protects the rest of the metal from corrosion. Pipe is often found covered with a hard, dense coating of rust which has effectively protected the metal underneath; wrought iron also acts in this manner.

### Artificial Coatings

Artificial coatings are of two sorts. First, there are metallic protective coverings and then non-metallic. The non-metallic coatings produced with the aid of paints will first receive attention. It is not our idea here to go into a discussion of the proper way in which to paint a holder or any other exposed iron structure. It is understandable that the surface which is to be painted must be clean and free from all substances which will prevent the proper adherence of the paint film. It is absolutely useless to paint a surface without first putting it into the proper condition, and those who have painted over an improperly prepared surface know well the results and the loss of time and money occasioned by the paint pealing in short order and by the necessity for immediately repainting the surface. There are, of course, various methods of preparing the surface, depending on its character and the impurities that are present on it. Thus it may be sand-blasted, treated with acids, etc.

Every engineer knows what paint is, and also knows what it is intended to accomplish with it. He generally does not know, however, how to tell between a good and a bad paint except by actually using it and finding out by experience. This is, of course, a very expensive method, for not only does it involve expense as far as the actual painting is concerned, in that the cost of the labor of painting is considerably greater than the cost of the paint itself, but it also opens up a possible expense due to the corrosion of the structure before the failure of the paint film has been detected. The best rule for the gas engineer to follow is to use a paint that has been manufactured according to the best scientific principles by a manufacturer of standing in his industry and with a reputation to uphold both for himself and his product.

### Anti-Corrosive Pigments

There are, of course, quite a number of different pigments that are employed in making paints for iron structures exposed to atmospheric corrosion. Some of these are important to the gas engineer, and these only will receive attention here. Industrial structures—and in this respect the gas works is no exception—generally appear either a black or red. Sometimes they are painted gray and in rather rare instances a white, unless it is a wooden building or the like. The pigments that seem to be most favored, however, are black and red.

There are several red pigments. The reason why several instead of one red pigment is used in making red paints for external corrosion protection is basically one of price. Some of the red pigments are more expensive than other and give a paint which costs more. It is true that in certain cases it is more preferable to use the cheaper paint, but as a general rule it must be held that the better the quality of the paint—and this means not only the pigment in it, but the quality of the vehicle, the dilutent and drier—the more advisable it is to use it, provided the price is commensurate. The labor of painting has been pointed out to be considerably more than the cost of the paint, and hence it is cheaper in the long run to use the better and higher priced paint, for then the repainting of the structure will take place at less frequent intervals.

### Red Lead

One of the best known commercial pigments, and also one that is eminently effective, although not classed as the best red pigment, is red lead. This is an oxide of iron, having the formula $Pb_3O_4$. This pigment will give a film which is very elastic and dense and which will shut out moisture and those gases that corrode the metal. The pigment is always found with a certain content of litharge, another oxide of lead, and it is a question as to how great the influence of this oxide is on the value of the pigment. One important consideration is that the pigment should be very finely pulverized. As far as the proportion of the pigment in the paint is concerned, this is important and must be a certain minimum and should be as high as is compatible with paint making technology and economy, for it has been pointed out that the higher the concentration of the pigment in the paint, the more serviceable the paint. It should be pointed out here that excellent ready mixed paints are manufactured and sold on the market, and that these paints can be kept in good condition for quite a time.

### Other Pigments

The iron oxide reds have also been largely used as pigments in the manufacture of corrosion-protective paints. Generally these paints also contain a little red lead and from ten to twenty per cent of zinc white and the like. These paints are very good protective agents and are largely used on roofs, metal structures and the like.

Recent tests carried out at Atlantic City have shown that American vermilion, which is a basic chromate of lead, was not only the best red pigment, but the best of all pigments tested. This pigment

(Continued on page 372)

# Window Display Advertising

## Development of "ideas" that sell more gas to pleased customers

*R. M. Martin*

Director of Display, Consolidated Gas Company of New York.

LATELY we have been hearing more from utility companies about window display advertising and relatively less of window dressing. In days gone by the gas industry attempted to apply department store methods to its windows, which resulted in incongruous combinations, that we all recall. At that time an unsuspecting gas range would be seen in front of an arbor of artificial flowers or a space heater associated with yards of ribbon, or the like—all in a vain attempt at a subtle tie-up between a gas appliance and heaven knows what. Unfortunately these tie-ups were often so vague that the public was not stopped. Subsequently it was found that the windows of a gas company must be considered in an entirely different way from those of a department store, even though the latter be next door or around the corner.

### Early Attempts at Fault

All early attempts at window display by gas companies were produced with the thought in mind of beautifying the appliance shown, whereas today the good appearance that a few gas appliances do possess is considered only in a secondary capacity. To digress for a moment, let us consider some of the more expensive space heaters, as I believe the gas industry should be most proud of these appliances from an appearance standpoint. Is it possible to imagine anyone buying one of these appliances as a fireplace ornament? In other words, has a sale ever been recorded for such an appliance for use in a fireplace not supplied with gas? I could safely venture to say no. Such appliances are sold solely because they are an ideal heating medium for certain specific needs. This in a nutshell explains the niche that modern window display advertising fills. It is the creator of the desire of possession—it sells the idea and produces a field of potentialities for its company's commercial department. Gone are the days of baby ribbon and artificial flowers and in their place we have the modern technical display studio such as that herein pictured.

For best results such a studio must be conducted along generous lines by the gas company itself, because each window display produced must be a link in the endless chain of sales activities, public relations, etc. Such a studio must be under the direction of a man familiar with gas and appliances and include a personnel of highly specialized artists who know and appreciate their company's policy. The Consolidated Gas Company of New York has established one of the most complete studios in the United States as far as utility companies are concerned, for the production of all display advertising. Besides the director, its personnel consists of one pictorial artist and an assistant, one letterer, one construction man, and two window setters.

### Display Advertising Wide in Its Scope.

The term "Display Advertising," while it sounds uninvolved, embraces almost everything imaginable from the making of a simple price card to a period fireplace or an actual building facade; and in every case the studio craftsmen must unfailingly be able to produce the effect originally created on paper. The Consolidated Gas Company of New York uses the latest mechanical labor-saving devices in producing the endless variety of settings continually issuing from this land of imagination—its display studio. Occasionally as many as nine window displays, all alike, must be produced to enable sales offices to participate simultaneously in a special sales effort.

A dummy window against one wall of the studio is complete with lighting, draperies, etc., and is a composite arrangement of all the windows of the company. Here all window displays are set up upon completion, when minor flaws are detected and removed. When everything is finished a photograph is taken. Such a photograph is very valuable, both as a record of the display and also as a guide for placing the material in the several actual windows in which it is shown before old age descends upon it. The production of window displays is not monotonous work, but calls for ingenuity at every turn.

New problems have an uncanny way of continually presenting themselves in a display studio.

### Following Through an Idea

Let us follow the creation of a window display from its very conception. The original thought is usually difficult to obtain. Its ultimate arrival is sudden and incomplete, but at least it is a thought.. Its practicability is immediately determined by experience or experiment. Let us say that a window display featuring water heating is to be produced. The thought comes to mind of a group of small boys thoroughly enjoying themselves in the "ole swimmin' hole." Simultaneously, it occurs that while this is ultra bathing luxury to youngsters, grown-ups are better satisfied with the warmer bath obtainable at home. Next, the "copy," or reading matter, is written; then a sketch is made, showing co-ordination of thought and technique to be used, and, finally, the studio begins the production of the window display. With measurements and materials predetermined, the work is soon completed. The display is then assembled in the studio dummy window. Next it is packed and scheduled for two or three months' exhibition, as the usefulness of the average display, due to its being circulated about, is from eight to twelve weeks.

In conclusion, we adopt as our motto for all display work "Creating the Initial Desire of Possession," and always bear in mind that the initial impulse that makes a housewife realize that her gas range is worn out does more for a gas company than any other single factor.

## DISTRIBUTION MEN HOLD IMPORTANT CONFERENCE IN BALTIMORE

### Over Two Hundred in Attendance

With an attendance that ran well above the two hundred mark, distribution engineers and superintendents gathered for a conference at the Belvedere Hotel in Baltimore on April 4 and 5. A number of extremely important papers and reports were presented by men prominent in distribution affairs. Much of this data and information was not complete or final in its makeup; however, it served to impressively demonstrate that this branch of the industry is fully alive to its responsibilities in economically carrying gas from the holder to the customers' premises.

President H. A. Wagner, of the Consolidated Gas, Electric Light and Power Company of Baltimore, in addressing the conference, called attention to the fact that the greater percentage of a company's investment is represented in the distribution system, and therefore its various problems require particular study. He pointed out that the distribution engineer will play a part of major importance in determining what the future rates will be. Mr. Wagner stressed the need for broadening and developing the industrial load. In striking the keynote of the meeting, which was essentially one of effecting economies, his short but meaty address was received with considerable applause.

Mr. F. A. Lydecker, by means of well-arranged curve charts, showed how it was possible to calculate the most economical distribution system to suit a given set of conditions. When such a set of curves are finally worked out from a large amount of trustworthy data they will form an extremely important and readily usable contribution to gas distribution technology.

In a report on pipe joints Mr. J. D. von Maur brought out that there are over forty million joints in the distribution systems of the United States and Canada. He asked that an accurate record of leaks be kept, so that this information can be pooled and used for the benefit of the gas industry as a whole.

Mr. C. M. Cohn, vice-president of the Baltimore company, spoke on the need for more and better trained technical men for the gas industry. He was of the opinion that the Gas Engineering course at Johns Hopkins University would go a long way toward supplying such men especially trained in gas technical matters. He suggested that wherever possible active support and co-operation be given this course in gas engineering by all companies.

Discussions on Pipe Coatings and Soil Corrosion were handled by Mr. J. K. Crowell and Mr. K. H. Logan, respectively. Mr. Logan brought out some important facts about corrosion, galvanic action and the like and indicated that a close study of local conditions would have to be made in order for a particular company to handle this problem with any degree of success. He asked for close co-operation on the part of all who are studying the subject of corrosion.

Mr. E. S. Umstead handled the subject of Pipe Materials in a convincing manner and Mr. M. I. Mix's paper on taking care of the house-heating load augurs well for the future use of gas in this regard.

Messrs. F. M. Goodwin and George A. Lane discussed power machinery for distribution work and meters in the order named. In the latter case a number of charts were displayed, showing the variation in accuracy of meters, etc., for a number of companies who reported on this subject.

An intensive discussion of the various papers and reports was entered into and at the conclusion of the conference Chairman C. C. Simpson and the members present extended a vote of thanks to the Baltimore company for its generous hospitality and lively interest in the meeting itself. In this connection it is interesting to note that Mr. Wagner and Mr. Cohn sat through much of the time occupied by the work of the conference.

On the evening of the 4th those in attendance were guests of the Baltimore company by way of a theatre party at the Maryland Theatre. Over two hundred attended the theatre party.

The ladies were taken on a sight-seeing tour around the city and suburbs, being later entertained at the Baltimore Country Club.

# Interesting the French Cook in Gas Burning Equipment

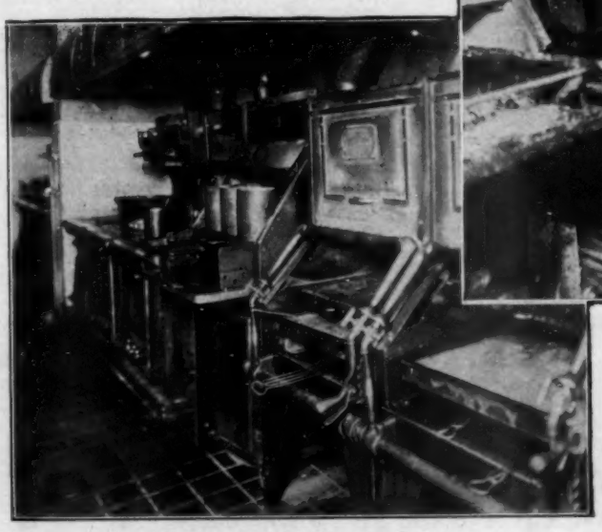
## How a letter assisted in the sales of hotel equipment in New Orleans

*R. M. Schmidt*

Industrial Gas Engineer, New Orleans Public Serv ice, Inc.

IN the early part of 1914 New Orleans had some very old-time French cooks who were extremely hard to interest in the use of gas for general cooking. At this time, however, a very young French cook was put in charge of the kitchen of the old Cosmopolitan Hotel (now the Chess, Checker and Whist Club) then one of the leading hotels in the city. Both he and the manager being quite up-to-date were convinced of the wisdom of installing gas fired appliances for their general cooking.

After the trial installation gas proved to be a better proposition than coal and from that time on it was not very difficult to secure this type of business. All of our hotels use gas for general cooking with one exception, the Monteleone, and at the present time we are trying to interest the management of this hotel to the end that they will make a complete installation of gas fired equipment when they build their new annex.



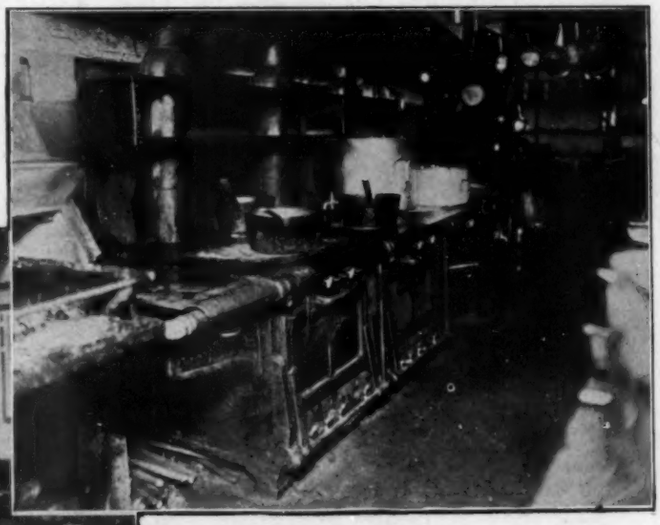
*Kitchen of Galatoire's Famous Restaurant*

The Roosevelt Hotel, one of our leading hotels, has a complete gas equipped kitchen comprising the following appliances:

24—Section of Heavy Duty Hotel Ranges.
4—Broilers.
4—Salamanders.

and several miscellaneous appliances. The average monthly consumption is 600,000 cu. ft. Our rate on 600,100 cu. ft. or over is .806 cents net. This hotel usually earns this rate or the next higher rate of .845 cents net.

For the smaller short order restaurants a stove (name and address of manufacturer on request) was designed by the writer to meet our local conditions and, personally, I believe this makes an ideal range. It is equipped with three double controlled front burners for frying and three small burners at back for general cooking. The measurements were as follows: Oven 22 x 19½ x 14 inches; grooved griddle 24½ x 17½ inches, with a broiler attachment beneath griddle. We have sold this type of range to most of our short order restaurants and it has proved most popular.



*Part of Hotel Roosevelt's Kitchen Equipment*

It is of interest to know that about 85 per cent of the restaurant and commercial cooking in the Crescent City is done with gas. It is the only logical fuel to use and in due time we expect to have New Orleans "America's most interesting city" a 100 per cent in the use of gas for restaurant cooking.

**Sample of Contract Submitted in 1914 to First All Gas Restaurant Prospect**

Dear Sir:

In your kitchen you have at the present time:

5—Section of coal ranges for general cooking and several small gas appliances for special cooking purposes.

In the use of coal fired ranges a number of items of cost enter, which are entirely eliminated by the use of gas ranges, such as coal buckets, shovels, pokers, ash cans and pans, also the replacing of range tops, rings, fire box linings, and grates. These items extending throughout the year would amount to not less than $15.00 per month. The handling of coal from the sidewalk to bins and from bins to ranges, the firing of ranges and removal of ashes and extra cleaning of floors made necessary by burning coal will require the entire time of one man and very probably more at times. This man's wages are very likely $30.00 per month and his meals are worth at least $15.00 per month, making his cost to you $45.00 per month.

You are no doubt familiar with the coal situation, and from present indications the future prices and delivery are very uncertain. While you are protected on your last year's contract as to prices, new contracts as based on prices are almost prohibitive.

The entire work that is being done with the above various appliances can be done with:

5 Sections of Heavy Duty Gas Ranges.

1 Section of Heavy Duty Gas Range Table Stove.

These gas ranges have large capacity ovens and the cooking top will be equivalent to your coal equipment occupying the same space. By the use of gas ranges one man's time can be entirely eliminated to begin with and after rearrangements you may find it possible to dispense with another man.

**Flexibility of Cooking Procedure**

Most of your chefs had some experience with gas ranges and they would be able to regulate the heats on any range to suit the particular requirements of food being prepared. It is possible to get any degree of heat required on the range top, a red hot spot may be had, if desired. At certain hours of the day it will be possible to take care of the cooking being done with one or two sections of gas range. In quantities in excess of 150,000 cu. ft. with a discount of 10 cents per 1,000 cu. ft. or a net rate of 75 cents per thousand. (Rate in effect at this time.)

We estimate your present cost of coal, labor, etc., as follows:

| | |
|---|---|
| Coal for 5 ranges average cost per month | $140.00 |
| Upkeep, etc., average cost per month | 15.00 |
| Wages of man | 45.00 |
| Gas bills on small appliances | 53.00 |
| Total cost per month | $253.00 |

By the installation of gas equipment specified we feel confident a saving may be made of $50.00 per month over the present operating cost of your kitchen.

In view of this, we herewith submit the following proposition:

We will remove your coal ranges and replace them with the following:

5 Sections of Heavy Duty Ranges.

1 Section of Heavy Duty Ranges

The installation of these ranges to be made at such time as will be best suitable to you, and not to interrupt your service. These ranges will be installed on 60 days trial. During this trial period, we propose to have an experienced gas appliance man in your kitchen as much of the time as is possible. To instruct and co-operate with your chefs in the economical handling and operation of gas ranges.

The only cost to you will be for the gas consumed during the 60 days trial period. If at the end of the 60 days trial period you are satisfied with the gas equipment and bills we will bill you for the actual cost of these appliances connected in your kitchen which will be $650.

We also agree to make a periodical inspection of all appliances in order that they may be kept to the highest point of efficiency.

We further agree that if at the end of 60 days trial period, you are not satisfied with the gas equipment and your bills, we will remove the gas equipment and reset your coal ranges without cost to you.

¤ ¤ ¤ ¤

**Frank LeRoy Blanchard on Advertising**

FRANK LeROY BLANCHARD, director of public relations of Henry L. Doherty & Company speaking before the Advertising Club of the Denver Chamber of Commerce, among other things said:

"Let us consider the fallacy that advertising is a sort of Aladdin lamp that will bring fame and fortune to all who use it. Many business men would now be better off if they never advertised, for the money they spent brought them no tangible financial returns."

This was explained by saying that the advertisements were untimely, failed to convey the message intended, hence it is the money was spent for nothing, as it were. In other words, any old time and any old way will not do.

He disapproved of the idea that because a manufacturer, over a number of years, had built up a large business could cease advertising and he enlarged upon the statement that free publicity can never take the place of straight advertising.

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# Book Review

## WORTHWHILE TALKING POINTS FOR THE GAS SALESMAN

**Competition Points for Gas Salesmen.** By Arthur F. Bezant and Norman S. Smith, B.Sc.; Walter King Ltd., London, England; 192 pp., 10 illustrations and curves.—A reading of this book will amply repay the man who sells gas for both domestic as well as industrial consumption. In it will be found sales points regarding the use of gas for lighting, water heating, space heating, power, industrial purposes, and miscellaneous applications. Wherever competitive forms of power and fuel are to be encountered by the salesman and he must necessarily combat the same with reliable arguments the present volume will fill a long-felt want. There are many figures and data tabulated throughout the book but in all cases this matter is "boiled down" to an understandable basis. Where necessary, calculations are employed. A very timely publication for the salesman as well as the commercial manager.

# Load Building Domestic Gas Rates*

## A problem all gas companies must ultimately solve

*A. J. Luick*

Lucas & Luick, Engineers, Chicago

WHEN the subject of this paper was assigned to me, I was at first inclined to think that the field had been so thoroughly covered in previous papers read before this and other associations, that another paper on the same subject would amount to useless repetition. However, when I stopped to consider the gas rate situation in Illinois, particularly as it applies to domestic gas rates, it seemed to have the status of the ordinary alarm clock. We set the clock each night with the definite object of arising at a predetermined hour in the morning. When the alarm rings, we are awakened; but when it stops ringing, we fall asleep again. It appears that, while many papers read before gas conventions have sounded the alarm on gas rates, most of us have fallen asleep again as soon as the message ceased ringing in our ears. If we have no intention of arising to the necessity for rate revisions, then metaphorically speaking, it would be much better to throw the clock out of the window and continue our sound slumber, than to tantalize ourselves intermittently with the ringing of the alarm.

This analogy occurred to me when I looked over the rate list of manufactured gas companies published by the American Gas Association under date of January 1, 1926. Despite all that has been said about the desirability of logically designed gas rates, I was surprised to note that out of sixty-five gas companies in Illinois, which are listed in this volume, forty-four of them still had only one rate for gas, covering all classes of use. It is possible that during the year a few more companies have added industrial or house heating rates. However, if we do allow for such additions as may have accrued to the list during the past year, there is nevertheless a startling number of companies which, as to gas service, still adhere to the theory of one rate for all.

### One Gas Schedule—Many Electrical Schedules

Is it not strange that, despite all that has been said in the past few years about the desirability and necessity of setting up gas rates on a more logical basis, so little is actually being done? With the development of the public utility industry and the resultant operation of electric and gas utilities in the same community under one management in many cases, it is all the more surprising because in such cases, we as gas men marvel at and envy the progress which we as electric men are making, while fully cognizant, as a general rule, that the remarkable development of the electrical industry is largely the result of properly designed rates. It is hard to explain why in the electrical end of our business we have from five to ten schedules designed to meet the requirements of the various types of business which are available and still feel that one gas schedule, taking into account only the matter of quantity used, should suffice. As I said before, two-thirds of the gas companies in the state of Illinois still have only one rate for gas covering all classes of consumption. I venture to say there is not one electric company in the state that has only one rate covering all classes of service. Some of us may perhaps sit back with an air of conscious virtue, satisfied in the knowledge that we have more than one gas rate, as it appears that some twenty-one companies in the state have two or three rates, a rate for general use, a house heating rate and an industrial rate. I wonder how many of these companies would consider going outside of these three schedules to secure a particular piece of business for which a special rate would be warranted, which none of these companies would hesitate to do for a similarly attractive electrical load.

### Necessity for Revised Forms of Rate Schedules

The vital necessity of doing something constructive with our gas rates, not only in the industrial but also in the domestic field, becomes apparent, if you will analyze your sales over a period of years. I have analyzed statistics of eight representative gas companies in the state of Illinois and find that during the past few years the average sales per meter have shown a marked decline. This alarming fact was brought to your attention last year in Mr. Purcell's paper and is repeated here only for the sake of emphasizing the necessity for action. The falling off in consumption per meter can of course be accounted for by the change in the general mode of living. However, it certainly will not do to sit back supinely, satisfied with the fact that we have the explanation for the decline. Efforts must be made, if we would protect our investment, to counteract this decline in sales per consumer and to turn the trend of the curve the other way. This is by no means a hopeless task, and strange to say, can be accomplished by the very simple plan of applying to the design of our gas rate schedules the identical principles which we ourselves have applied to our electric rate schedules for many years past.

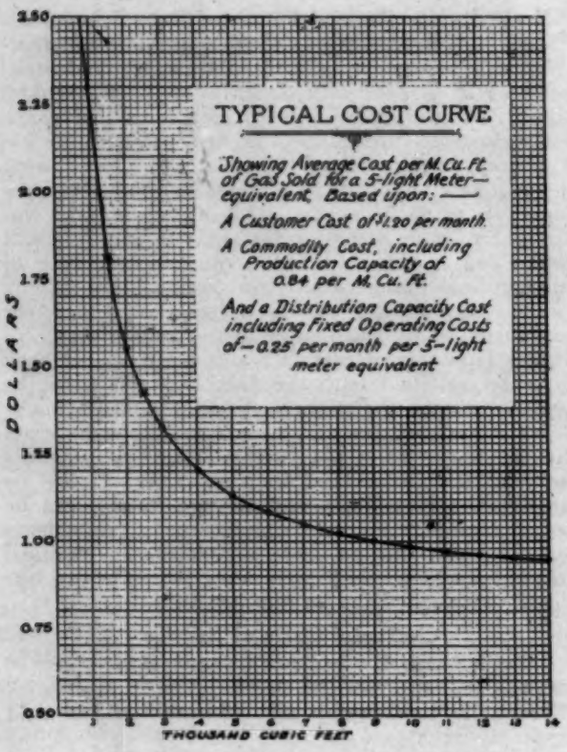
### Elemental Costs of Service

Because electricity can not be economically stored for ordinary purposes, the electric industry was quick to recognize that energy sold off-peak could be sold profitably at a rate or rates much lower than the on-peak rates. A simple analysis disclosed that the fixed charges on the investment continued just the same whether the plant was turning out energy or whether it was not. Carrying this analysis into the operating expenses, it was further found that a certain and not inconsiderable portion of the operat-

* Presented before the joint convention of Illinois Gas Association, Illinois State Electric Association, Illinois Electric Railways Association, March 17 and 18, 1927, Springfield, Illinois.

ing expenses were constant, whether or not energy was actually being distributed. The result was that special rates were designed for off-peak business which eliminated certain of the fixed investment and operating charges and yet allowed the company a very satisfactory margin of profit. Such reduced off-peak rates immediately put electricity on a satisfactory competitive basis with other sources of power and resulted in a material increase in the system output, in the gross revenue and in the net earnings. This in turn permitted a further reduction in off-peak rates as well as on-peak rates, with a consequent further increase in output and a continuation of the cycle upon which is founded the electrical industry's proud boast of gradually reduced rates in the face of tremendous increases in the costs of material and labor.

When we stop to analyze the cost of gas service in like manner we find that the same principles that apply to electric rates apply to gas rates, the only essential difference being that gas can be stored, and consequently that with the installation of storage holders the element of gas manufacturing capacity is not involved in the same manner as is electric generating capacity. However, an analysis of the investment of many representative gas companies

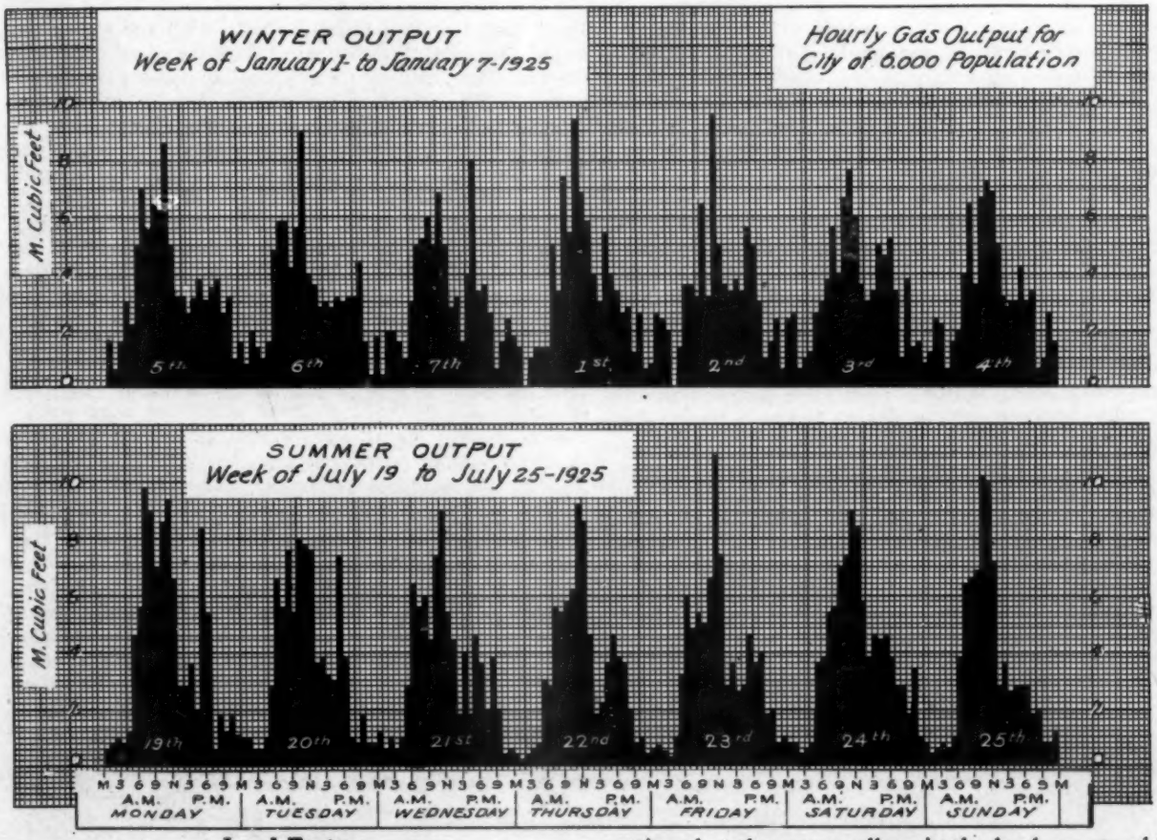

TYPICAL COST CURVE
Showing Average Cost per M. Cu. Ft. of Gas Sold for a 5-light Meter—equivalent. Based upon:—
A Customer Cost of $1.20 per month
A Commodity Cost, including Production Capacity of 0.84 per M. Cu. Ft.
And a Distribution Capacity Cost including Fixed Operating Costs of—0.25 per month per 5-light meter equivalent
DOLLARS
2.50
2.25
2.00
1.75
1.50
1.25
1.00
0.75
0.50
THOUSAND CUBIC FEET

shows that approximately 70 per cent of the total investment is represented by commercial holders, mains, services, meters and other equipment, the fixed charges on which should properly be considered as customer or distribution capacity charges, and, further, that there are certain operating expenses as is the case with electric companies, which fall in the same classifications.

In its report to the 1925 convention of the American Gas Association the "Committee on Analysis of the Gas Company Statistics" submitted a basis for division of investment charges and operating expenses between the elemental costs of service, that is production demand, distribution demand, customer cost and commodity cost. I believe that every gas company manager, who has not already done so, would find it more than worth while to make or have made for him such an analysis. I am sure you would be surprised to learn at how low a figure gas could be sold profitably under certain load conditions or at certain times of the day. Incidentally, it was quite surprising to find how much similarity there is in the fixed charges for a number of companies analyzed on this basis, despite a considerable difference in other conditions.

### What an Analysis Will Show

From analyses made of the fixed investment and operating costs of a number of gas companies, it appears safe to say that consumers using less than 2,500 cubic feet per month are, generally speaking, either carried at a loss or are just paying the cost of serving them, considering the proportionate investment charges as well as the operating expenses. On this basis, those consumers who use in excess of 2,500 cubic feet per month must produce sufficient profit to pay the cost of serving them and to make up the deficiencies from smaller users, if in fact these deficiencies are made up. With this in mind, it is rather interesting to note that in the case of the gas companies hereinbefore referred to, approximately 75 per cent of the consumers use less than 2,500 cubic feet per month and take about 45 per cent of the total output. In other words, almost 75 per cent of the total number of consumers are either just paying the cost of serving them or are falling short of doing so, and the 25 per cent of the total number, who are using in excess of 2,500 cubic feet per month, must make up any deficiency in the returns from the other consumers. If, recognizing this, you will concentrate on increasing that portion of your sales in excess of 2,500 cubic feet per consumer per month, you will make up this deficiency more easily by increasing the percentage of your output which is most profitable and which concurrently reduces the percentage of less profitable business. A lower rate for large consumers will thus be made possible which in turn will place your industrial gas service on a competitive basis with other fuels at the point where competition is keenest. The "breaking point" of 2,500 cubic feet, referred to above, applies to capacities approximately that of a 5-light meter. Larger capacities will of course involve higher capacity and consumer charges so that the breaking point would be in excess of 2,500 cubic feet.




### Load Factors

It is quite interesting to look at this problem from another viewpoint, that is, from the question of daily, weekly or annual load factors. The diagrams on the following pages show typical load curves for two communities in Illinois, one of a population of close to 40,000 and the other of a population of 6,000. It will be noted that in the case of the larger community the peak comes between five and six o'clock in the evening whereas in the case of the smaller community it comes between eleven and twelve o'clock in the morning. The point, which commands particular notice, is that the maximum hour is clearly a maximum hour and the consumption during that period is considerably in excess of the consumption at any other time of the day. In other words, a considerable percentage of the capacity provided for that maximum hour lies inactive during the other twenty-three hours of the day, which condition is further aggravated by the variation in seasonal demands for gas. An analysis of weekly load curves for a number of plants in the State of Illinois shows an average weekly load factor of 31.2 per cent and a maximum, in the most favorable situation, of only 36.8 per cent, and further discloses a downward rather than an upward tendency. The distribution investment of the average gas company is working, therefore, less than one-third of the time. The weekly load curves of these plants, taken both during winter and summer months, show variations in the hours at which the maximum output occurs, but the characteristics are alike in all cases, indicating that there are valleys in the load curves which should be filled out and which justify rates which eliminate either wholly or to a large extent distribution investment and fixed operating charges for business which can be attached during off-peak hours. It should be particularly noted, in the case of the two companies shown, that the sendout after eight o'clock at night and until six in the morning is very small and the gas sold at this time could be sold at very little above commodity and production capacity costs and still be sold at a profit. It should further be noted that analysis will show that the variable operating expenses or commodity costs are only slightly above the holder costs.

### Effect on Form of Domestic Schedules

The conclusions to be drawn from the above are, first of all, that there are certain classes of gas consumption during restricted hours to which gas can be sold profitably as long as the rate exceeds the combined commodity cost and the production capacity cost by a reasonable margin; and secondly, that once a customer has paid his proportionate share of the customer costs and of the fixed investment and operating costs, any additional gas which he uses can be sold to him profitably with only a relatively small margin over the commodity and the production capacity costs. It might be remarked here incidentally that only slight consideration need be given to an adjustment of the commodity cost for unaccounted-for gas, since the actual volume of the unaccounted-for gas will be affected only to a small extent by an increase in output per consumer up to

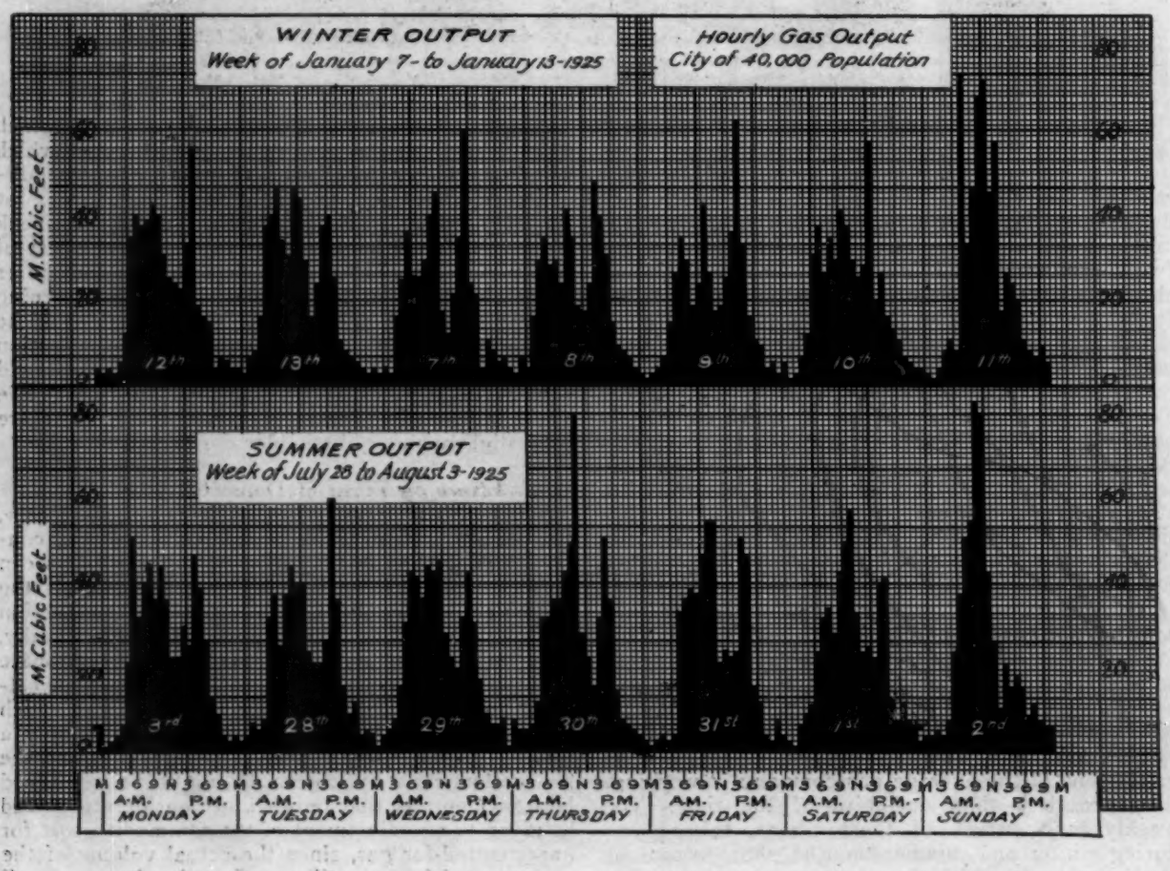
the point at least where increased pressures are required on the system and made necessary by such increased consumption.

This principle, which has been in use in the electric industry successfully for years, has been almost entirely overlooked by the gas industry. Further, while it is now being recognized as essential in the proper building of industrial gas rates by some gas companies, it is still being overlooked in almost every instance in Illinois, in so far as domestic business is concerned. While I am enthusiastic about the possibilities of the industrial gas business, I feel that we are overlooking the possibility of increasing our domestic gas sales with properly designed rates. to some extent but it at elast has the virtue of placing With the present falling off in sales per consumer, which has become evident during the past few years, it is certain that efforts must be made to counteract this tendency. I believe that we can regain what we have lost, and further that there is a great deal of domestic business to be had which has never been reached, largely because of improperly designed domestic gas rates.

I have made a number of analyses following the plan outlined by the American Gas Association's rate structure committee covering the customer charge and fixed investment and operating charges for a five light meter or equivalent, which, with the exception of a house heating load, will take care of all domestic consumption. Based on a typical analysis a consumer using 1,000 cubic feet per month should pay a fixed charge of about $1.46 plus a commodity charge of approximately 84 cents, making his rate $2.30 per M. cubic feet. A consumer using 2,000 feet should, on the same basis, have a total bill of $3.14 at an average rate of $1.57. In the case of a consumer using 3,000 feet, his total bill would be $3.98 at an average rate of $1.33. At 5,000 cubic feet the average rate would become $1.13. It will be noted from the typical Cost Curve included herein that the average cost per thousand cubic feet reduces rapidly with increased consumption. A logically designed rate schedule will naturally follow the general trend of the cost curve.

It seems to me to be a foregone conclusion that any rate which follows the cost curve in a general way as hereinabove outlined, must be effectual in developing business and inducing larger consumption of gas in the home. It goes without saying, of course, that the capacity or consumer costs go on just the same, whether or not gas is used. These, therefore, must be collected in some form or other, either by a community or service charge, a higher cost for the

(Continued on page 372)



# Fire Prevention

## Gas-fired incinerators can greatly assist movement

*A. A. Naulin*

President, Home Incinerator Company, Milwaukee, Wis.

FEW people realize that there was an increase in the 1926 fire loss of $21,000,000 over the previous year, or a new total of $570,000,000. Leading authorities find that over 50 per cent of this tremendous loss is caused by rubbish accumulations about the home, found in such places as the basement, attic or stairway.

Those interested in fire prevention are now warning home owners against permitting paper, rubbish, rags, etc., to accumulate. Warnings of this kind are being noticed by the home owner. What is he going to do unless some safe means for the disposal of these accumulations is offered him?

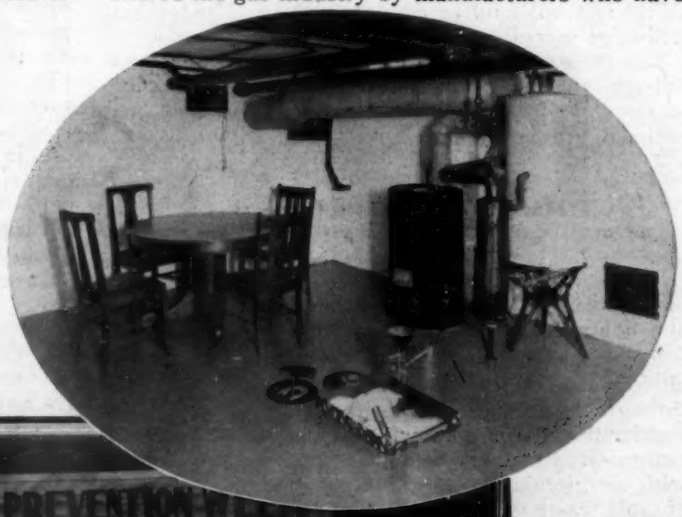
Fire Prevention is now a national movement. A tremendous national Fire Prevention campaign is planned this October to be started off by Presidential proclamation and carried on by local associations of commerce bodies, school boards, fire prevention bureaus in the fire department organizations of every city.

Fire prevention by gas from domestic rubbish and garbage disposal appliances is a national service the gas industry can now offer to help the American public overcome our tremendous annual fire loss.

### Gas Companies Can Assist

Gas company executives and sales or commercial managers can place this additional public service by gas before the people in their community with the firm conviction that gas is today able to render this much needed service.

One-half of our national fire loss can be prevented by placing all paper, trash, rags, rubbish and other household refuse in a gas-fired incinerator. The same can be safely burned every other day, twice a week, or as often as the gas incinerator has been filled, with the absolute assurance that nothing will be left in a specially constructed ash pan but odorless, harmless ash. Only a pint of this is left when burned in properly constructed gas-fired incinerators now offered the gas industry by manufacturers who have studied thoroughly the application of safe gas-fired appliances for the disposal of rubbish and garbage at the source, that is, in the home.



*Above — Children's play room and stag card room.*

*Left — Fire prevention story on Home Incinerators as told by the Utica Gas and Electric Co. during Fire Prevention Week. Courtesy of Geo. A. Wieber, Com. Mgr.*

When the American public once understands that the gas industry is able to render such a remarkable service as fire prevention by gas, they will readily agree that disposal at the source of kitchen refuse in the same gas-fired appliance is most desirable, giving the home owner besides fire prevention such additional benefits as elimination of the garbage can itself with its odors, flies, and many other evils; elimination of delayed calls by collection wagons; elimination of possible source of disease-breeding germs, etc.

Fire prevention, in the writer's opinion, is the service by gas the American public wants now. They will gladly accept kitchen refuse disposal via the same means when they find out that a safe and efficient gas-fired domestic incinerator can be installed in their home or any place in the basement without disturbing walls or partitions by simply making six-inch smoke pipe connection to a chimney and one-half inch gas line connection to a gas pipe.

The cost is about one per cent of their investment in a $15,000 home. Prevention of the greatest destroyer of our American homes at one per cent certainly is a splendid investment and good judgment will urge acceptance of gas for this new service.

Can the gas industry afford to overlook this splendid opportunity to present gas as the ideal servant to the American public in its effort to reduce our national fire loss?

### Modern Table Waste Disposal

Table waste and kitchen refuse disposal is a big problem in homes where sanitation, cleanliness and controlled disposal are desired.

Experience has proven that absolute disposal of all forms of table waste can only be accomplished through the means of a positive fuel, and the best fuel for that purpose known today is gas. The modern gas-fired incinerator built to provide ample heat with air circulation, absolutely solves the problem of table waste disposal in the modern home, because it is designed to absolutely reduce two or three bushels of any form of table waste to a very small amount of pure, odorless ash. Tin cans and other noncombustible material are also deposited in gas-fired incinerators of proper design and are sterilized in the burning process.

All household accumulations of rubbish and trash are deposited in the incinerator daily and consumed at the next burning.

The following are necessary qualities of a modern, gas-fired incinerator:

First: Incinerator should be of proper size, preferably large enough to hold two or three bushels of table waste and rubbish which accumulates in the average modern home every two or three days. Convenience; large top opening to receive bundles of table waste, vacuum cleaner dirt and refuse; the convenience in the ease of control and convenience in the dumping of the ash periodically after burning.

Second: Efficiency, in the use of fuel without waste and proper application of heat and air circulation so as to eliminate objectionable odors.

Third: Safety; correct construction, proper burner design and dehydration principle to avoid incomplete combustion.

Fourth: Durability; simple design, practical, durable heat-resisting finish keep incinerator attractive throughout its life.

Sixth: Simplicity of operation is a very important factor from users' standpoint.

The average owner of a modern home will welcome the installation of a gas-fired incinerator that will easily and quickly burn all forms of table waste, kitchen refuse and household rubbish to a small amount of ash, especially when the same can be easily installed in the home without destruction or rearrangement of walls or partitions.

When the properly designed gas-fired incinerator is installed, all refuse disposal is at the home owner's control, eliminating many of the undesirable features of municipal collection systems, such as delays, trips out in cold or bad weather for the depositing of bundles or refuse in outside containers awaiting collection.

The fire hazard from rubbish lying around in basements, hallways, stairways or rubbish piles being burned in back yards, is eliminated. The disposal in a gas-fired incinerator is simple, absolute and complete in the machine, without dangers of burning sparks being emitted from the chimney or the evil of nauseating odors and gases given off into the neighborhood from incomplete combustion sometimes attendant without a positive fuel.

### A Livable Basement

When the basement wins a place in society, will it be able to hold this lofty position? Or will it, after a brief fling, revert to its present lowly state?

Hitherto the basement has been little more than a stoke hole, rendered useless for all other purposes because of its dirt and ashes. Laundry and fruit or vegetable storage space form about the only exceptions to this wasteful rule. Perhaps even the dog could be quartered there. Bt that is about all that has been done to utilize a space that costs real money.

The importance of solving this problem is emphasized when it is remembered that the basement area of a bungalow is equal to the area of the living quarters. In a two-story house it is one-third of the available area, and though only used for eight months of the year by the heating apparatus, this condemns the entire basement, as far as the livable conditions are concerned, for the entire year. The dirt and dust of a coal-fired system sifts through the floors and settles upon curtains and furniture upstairs. The result of placing fine furniture in a basement would be ruinous.

(Continued on page 375)

# As The Journal Views It

## GETTING THE WHOLE STORY ACROSS

There has been an altogether radical but, at the same time, beneficial change in the nature of conventions or conferences, call them what you will, in the last few years. Prior to the change in question any meeting of men under conditions which necessitated a jaunt out of town was somehow looked upon as a time for a right generous show of levity and frolic. Indeed, the relatively small percentage who came a-thirsting for knowledge, as it were, occupied a somewhat similar position in the eyes of the merrymakers as does the "grind" in the estimation of his more versatile college mates.

Of course those "conventioneers" who were conspicuous by their absence in the meeting hall contrived to put across the old dodge that they derived considerably more information within the narrow confines of their own room than they could at the general meeting. These men, the veriest stage-frightened ingenues on the convention floor, became, through some mysterious agency, towering authorities on all matters when ensconced within a hotel room.

But of late there has been a change of heart in this wise that almost makes us look underneath to ascertain whether there is some trickery afoot. The minority of pioneers themselves stand aghast at the impetuous stampede of the erstwhile absentees for seats under the very nose of the speaker, who, even if he be an old hand at reading convention papers, is hurried almost up to the very gates of abject embarrassment.

Whence comes this thirst after knowledge? What is back of the metamorphosis? Have convention attenders been simultaneously hauled upon the carpet and given to understand that henceforth they will be held to strict account by way of bringing back a true and complete history of what went on? Are the former laggards getting fearful of retaining their positions? We can, it is felt, answer the foregoing questions negatively. May it not be suggested that the terrific urge of competition is fast getting all of us on our toes? Compared to the oldtimers, the present-day employee, regardless of his status, is and of necessity has to be a veritable expert. And this merely to hold his own in the upward struggle toward economic security. More we are appreciating the fact that the other fellow perhaps has something to tell us that might alleviate the arduous process of getting somewhere.

All of this very heartening increase in attendance on the convention floor imposes an obligation of no small moment on those whose duty it is to engineer the meeting in its entirety. As a matter of fact, it appears that the entire onus of responsibility now rests upon the latter contingent. And there is more to running a convention than the mere selection of speakers and the picking of a certain hotel in which to take care of affairs.

As we all know, some halls are perfectly atrocious as regards their acoustic properties. And then we have the condition to contend with wherein someone is responsible for placing a projection lantern in the very center of the audience. Out of this latter makeshift comes the disheartening craning of necks with its disgust-provoking tendencies. Stringing a series of charts which are well worth studying across a great expanse of wall space to the end that those on the opposite side of the room are in irritating ignorance of many of the same does not make for a pleasant state of affairs. Further there is an all-too prevalent custom of not furnishing those in attendance with copies of the papers being read or small sized replicas of any charts and diagrams being explained. As a matter of fact, it would be much more preferable to get any pertinent papers, charts and diagrams into the hands of members and those most likely to attend a convention or meeting a week or ten days in advance of the meeting itself. By this procedure anyone interested in the subject—and many will be, as a matter of record—could come to the conference or convention prepared to indulge in helpful discussion or at least "listen in" on any comments with considerable more interest and understanding.

Make no mistake as to the assertion that men are attending conventions with the greater number desirous of learning something that will in turn assist their industry. Hence in order that the entire story or paper might be gotten across most efficiently and by the least painful method, it behooves those in charge of meetings to see that the vehicle for carrying the message is well oiled and running smoothly.

# GAS MERCHANDISING

*Domestic – Industrial*

# Ideas for the Man Who Sells

*William H. Matlack*

### THE OTHER FELLOW'S HOBBY

"No man can ride two hobbies" said a salesmanager the other day." I am working around in a circle. I have planned certain drives for the spring season, have gone so far as to lay out all my advertising and have figures from artists for my window display and I have even talked my plans over with some of the folks in our immediate organization. It looked like

we were all set when—bing—that chap who calls himself our general sales manager comes to and brings out one of his hobbies for us to ride. It makes me positively ill; he has known of our plans for weeks, agreed that they might be put through, and now as spring approaches he opens his cocoon and all our work is for nothing to say nothing of all the "pep" we've lost. I'll tell you no man can ride two hobbies. My hobby is to plan in co-operation with the general scheme, then ride it through, but when the sales manager has a new hobby that he brings to light very suddenly, I find myself balking and then saying, "Oh! what's the use." We wonder if this happens very often. If it does, there is another reason for the high turn-over of sales managers.

☼ ☼ ☼ ☼

### KEEP THE CUSTOMER SOLD

The 'phone rang and when it was answered a voice said; "Good morning Mr. Blank, this is Fred Jones of the gas company speaking. I just wanted to inquire if the water heater which we installed for you last week is giving satisfactory service?" Mr. Blank was entirely satisfied with his hot water service and said as much and added; "I have told some of my friends about it. There is C. B. Rich, our G. M. who is building a new home over at Fairview, and there is Charlie Crane, my neighbor. Both are in the market for hot water service and you say to them that I told you so."

Salesmen grumble about lack of prospects but members of the Obvious Observers Organization waste no time in growling. They are busy building business by keeping their customers sold, and in turn are richly rewarded all-the-while by securing prospects from these pleased customers. The membership fee in this organization in initiative.

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### COMFORTS FOR CUSTOMERS

We find more and more retailers planning to make the customer comfortable when he comes into the store to buy; chairs, phone conveniences, stationery and envelopes, etc., are provided by many stores and in growing numbers. We suggested this to the gas man a year or so ago.but as very few of them have installed any of these comforts we think it worth speaking of again. Relax—that is the thing. Get

your customer comfortably seated and see if he is not much easier to sell. In arranging these places of rest, however care should be exercised to place several appliances directly before the customer.

# Give Your Gas Advertising Some "Elixir" of Life

*Calvin Lindley*

WHY aren't there more "animated" exclamation marks in gas company advertising?

Exclamation points are "animated" when instead of being run in their normal upright positions they are placed at varying angles. The device is one that has the approval of advertising experts. Still another advantage for gas companies is, that, although it is used extensively in national advertising, it is used infrequently in advertising for local retailers and service concerns.

Even the ordinary exclamation mark, such as is used in the accompanying advertisements, has a great value in getting the attention of the reader to a headline.

"It is oddly characteristic of the exclamation point that its firm rigidity and business-like contour suggests action and emphasis," said W. Livingston Larned in Printers' Ink. It looks the part it plays. It is a splendid symbol of determination.

"And when a copy writer starts out with the avowed intention of using exclamation points, it seems to make his style sprightly. Automatically, his words and phrases burn the wind. There is the elixir of life in the exclamation point."

Using the exclamation point is one of the easiest ways of adding emphasis to the space used by the gas company.

1
If it's done with HEAT You can do it Better with GAS
Stop Furnace Tending!
The new gas-fired house heating plants are automatic in operation. Light the gas once. That's all. The clock regulator turns the fire up early in the morning, heats the house comfortably before you rise, keeps the rooms at healthful temperature all day long, turns the gas very low at night! Any time during the day you can increase or lower the heat with UPSTAIRS REGULATOR.
No trips to the basement—No dirt or mess. No fuel worries. Find out about the
Gas-Fired Central Heating Plant
ESTIMATES of the cost of heating your house with Gas will be cheerfully furnished, without obligation, by our heating engineers, or they will be glad to co-operate with your heating contractor.
Sales Department, House-Heating Division
Washington Gas Light Co
419 Tenth Street Northwest
2
FREE WAFFLES!
TOMORROW [SATURDAY, OCTOBER 9.]
Call at our office tomorrow and be served with some delicious waffles made on a Griswold Waffle Iron or mold.
Waffle Iron or Molds
$2.25
$2.50
$2.75
$4.25
These waffle molds are very satisfactory when used on a gas range. Come in and pick yours out tomorrow.
The waffles will be made from Little Crow Pancake and Waffle Flour and Log Cabin syrup furnished by Good's Good Grocery and Meat store. Come in and sample this wonderful combination.
Gas & Coke Co.
PHONE 101
Even in making waffles you can do it better with gas.
3
PUBLIC SERVICE
Supplying Gas Needs!
4
PUBLIC SERVICE
Service Is the Goal!

*These ads. suggest action and emphasis*

1—*Washington, D. C.*
2—*Washington, Ind.*
3 & 4—*Hackensack, N. J.*

A tip to the advertising man of the local newspaper will get a big exclamation point animated in any gas company's advertising. Some papers may have illustrations, appropriate to the gas business, with animated exclamation points affixed to them; the cut services which supply the papers are beginning to send out a few to be loaned to local advertisers.

INDUSTRIAL GAS LESSONS

IF IT'S DONE WITH HEAT YOU CAN DO IT BETTER WITH GAS

# Lesson No. 164

# Water Gas

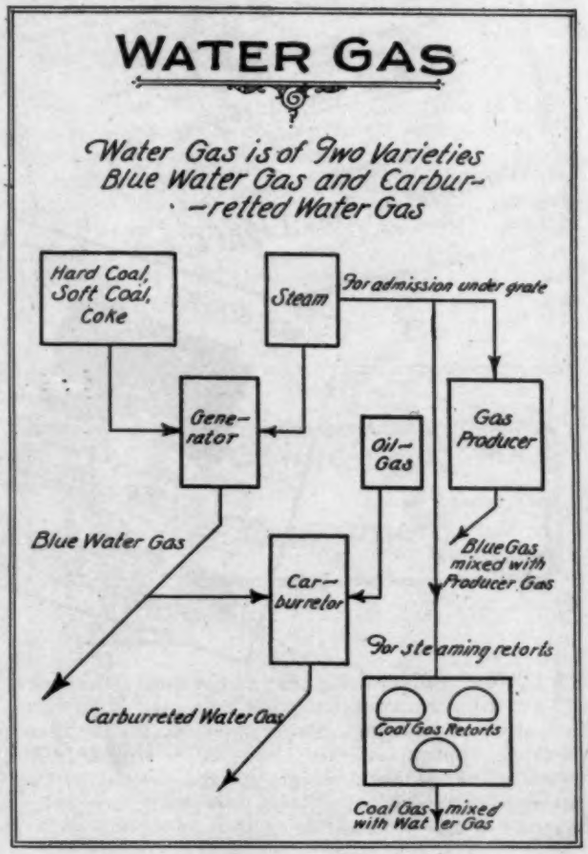
One of the most important of all manufactured gases is water gas. The name, water gas, is somewhat loosely applied—that is, it is used as a generic name rather than as a specific one. What we mean is that there are different sorts of water gas, namely, blue water gas, or blue gas, and carburetted water gas, and at times both gases are incorrectly called simply water gas. There should of course be a distinction made between these gases by name.

Water gas is a mixture of permanent gases, mainly hydrogen and carbon. Water gas in its original state or blue gas is thus present in producer gas, as has been indicated in a previous lesson, and it is also present in coal gas when the coal gas retorts are steamed. It is also made in the processes of low temperature carbonization of coal and complete gasification. It is, furthermore, made as such in generators, and in this form, because it burns with a bluish flame, it is called blue water gas or simply blue gas. It may be used industrially in this form, but it is usually enriched by means of high B.t.u. oil gas obtained by cracking gas oil, and the result is carburetted water gas.

It is interesting to note that blue gas was discovered by Fontana in 1780, several years before Murdock invented the coal gas process. It was not, however, until Lowe perfected the carburetted water gas process in 1875 that water gas became a factor in the gas industry. Carburetted water gas may thus be considered as a truly American contribution to the gas industry of the world.

### Blue Gas

We are first concerned with blue gas; that is, the mixture of hydrogen and carbon monoxide which is obtained by the reaction between steam and incandescent carbon. The formation of blue gas is a true chemical reaction, a decomposition of coal, and the union of the carbon of coal with the oxygen in steam, that is water in the vapor form, with the liberation of hydrogen, and the admixture of the two to form the blue gas. The reaction takes place in accordance with the following chemical equation: $C+H_2O = CO+H_2$, which simply reads that one molecule of carbon will react with one molecule of water (steam) to give one molecule of carbon monoxide and one molecule of hydrogen. In later lessons we shall go more deeply into the chemistry of this and other gas-making processes, after having first developed the fundamental principles of chemistry. It is necessary to mention here as well that in the formation of blue gas heat is consumed, and this is the reason why steam is blown into the producer gas generator to prevent the burning out of the grates. It must also be mentioned that steam will react with carbon to produce carbon dioxide and hydrogen, as well as carbon monoxide and hydrogen. Inasmuch as carbon dioxide is not a combustible, while carbon monoxide is, it is desirable to avoid its formation as far as possible. At every temperature and pressure that the blue gas generator is operated there will be a certain equilibrium between the two reactions, and most favorable results will be obtained at a certain definite temperature and pressure in the blue gas machine.



# PROGRESS IN GAS TECHNOLOGY
## *Domestic and Foreign*

### GAS GENERATOR

A GAS generator for the continuous distillation and gasification of liquid or pulverized solid fuel comprises an externally heated retort down which the fuel is showered through an ascending stream of oxygen containing gas, such as steam, in which the residue is gasified and cooled while the steam or gas is heated. Lime or limestone may be pulverized and fed together with the carbonaceous materials. A separate generator may be used for the distillation and gasification stages and the hot gases leaving the apparatus may be used to heat water in a coiled tube in the outlet pipe. The liquid or pulverized solid fuel for heating the furnace is admitted thereto together with a primary air supply by nozzles 8, the secondary air entering by apertures 5 and being heated in an annular space 4 before entering the furnace through inlets 7.

The combustion products heat the tube or receptacle 9 and pass to an outlet 11, and the ash, falling on to water pipes 12, is removed through an opening 13. The fuel to be gasified is supplied through an inlet 14 in a transporting stream of gas and enters the distilling zone 18. The volatiles are withdrawn through the tube 19 and the heavy undistilled particles fall through the gasifying zone 21, where they react with the steam injected through nozzles 32 and heated in the hot zone 22, the resulting gas mixing in the tube 19 with the distillates.

The incandescent ash is cooled by passage through the steam screen 23, which is thereby heated, and is collected at the bottom of the generator from which it is removed by a compressed air injector. If a rich gas is desired the steam and air entering at the inlets 32 is restricted and the ungasified coke particles driven by the injector 26 and pipe 28 into the furnace. Catalytic materials such as chromium, nickel, platinum, or tungsten may be added to the charge in the reaction tube. The unconsumed fuel particles at the bottom of the generator may be briquetted. (British Patent No. 263,559.)

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### CONTINUOUS WATER GAS PROCESS

FRENCH Patent No. 599,589 relates to a continuous water gas process in which a pulverized combustible and oxygen are employed. The low grade combustible is used in the pulverized state and is mixed with pure oxygen and a sufficient amount of superheated steam. The two reactions—that is, the oxide of carbon to give carbon monoxide and the decomposition of carbon with steam to give carbon monoxide and hydrogen—thus take place together with a slight evolution of heat. It is thus theoretically possible to produce a mixed gas, composed of water gas and an excess of carbon monoxide, of much higher B.t.u. value than a straight air or producer gas.

In order to insure these reactions taking place in this fashion, a supplementary supply of oxygen is admitted and made to pass through the entire mixture over a layer of incandescent coke through which the reactions are achieved. The generator chosen for this purpose is one that operates with fusion of the ash, which will then be fed with a mixture of oxygen, steam and pulverized combustible held in suspension in the gaseous medium. A waste heat boiler is also added to this apparatus.

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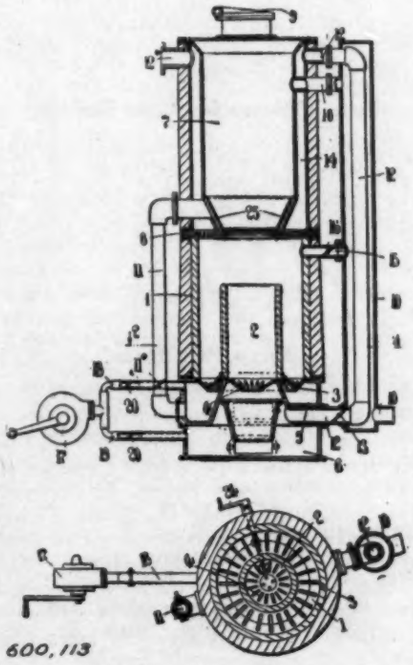
### IMPROVED GAS PRODUCER

THE gas producer which is patented in French Patent No. 600,113, has a closed generating chamber which consists of two retorts, arranged concentrically. The air courses through one of these



600,113

retorts from bottom to top, and the products of distillation and of combustion pass through the other retort from top to bottom. The heat in the producer is employed for drying the combustible on the point of being burned and for converting the volatile substances into gas in the interior retort.

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## CORROSION IN THE GAS INDUSTRY

(Continued from page 356)

is not affected by the carbon dioxide in the atmosphere. Its cost, however, is too high to make it generally applicable, although it is being used to a certain extent in metal primers.

Black paints are commonly made with the aid of carbon pigments, such as gas carbon black, oil black, natural and artificial graphite. These pigments give films that are very resistant to the corroding influences in the atmosphere and afford long protection against them when employed in the proper manner. They are always used over a primer and, where it is desired to coat the steel directly with a black paint, it is necessary to use black oxide of iron as the pigment in preparing the paint.

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## LOAD BUILDING DOMESTIC GAS RATES

(Continued from page 364)

first few thousand cubic feet used, or on some other basis. Once these costs have been so collected, however, it is useless to maintain a rate which still continues to collect these costs and by so doing creates a serious tendency to restrict sales.

Every gas manager should make or have made for him an analysis of his costs along these lines, and I am sure that he will feel well repaid with the knowledge he will gain of his costs of service, and the possibilities which such an analysis will open up to him in the matter of designing rate schedules which will act as business developers.

### Type of Rates for Load Building

It is not the intention here to recommend any particular type of rate. The type of rate which should be selected depends to a large extent upon local conditions and partly upon the effect which any rate change will have on existing revenues. There are in use, however, several forms of rates which involve the principles herein outlined, all of which are entirely practical and which I will discuss briefly.

### Three Part Rate

We are all familiar with the three part rate and know that it takes into account all of the various factors of cost previously mentioned. A rate curve developed from a three part rate consequently very closely parallels the cost curve. It carries with it the distinct advantage that is can be applied to all classes of consumption whether large or small, without restrictions. It has the disadvantage that it does increase the bill to smaller users whose load factor is relatively small. Please understand, however, that by a small user I do not necessarily mean the poorer class, as investigation and analysis have shown that the small user as a general rule is one who is well able to pay the fixed charges incurred in serving him. Regardless of this, however, it is difficult in any event to increase rates for a smaller percentage of users, even though the change might result in benefit to the larger percentage. On this account some trouble might be encountered in adopting the three part rate as a general rate schedule and as a substitute for an existing schedule. Another difficulty with this type of rate is that it is not easy to explain. Much of course has been said about it in the past, and gas men as a general rule understand it. However, it is not easy to make clear to the individual consumer the reasons for the various charges. I have met with this trouble with the demand and energy type of electric rates which are usually applied only in the case of large power users who might ordinarily be expected to better understand the principles underlying the demand charge. The difficulty, however, which has been encountered, even with this class of consumer, leads me to believe that much more might be encountered if this type of rate were to be applied to all gas consumers.

A further objection to this type of rate is that it requires either a demand meter or a load limiting device. In addition to the increased investment per consumer, these devices complicate the billing to some extent and introduce some service problems that are not encountered with the block rate.

### Community or Service Charge

In the case of the Community or Service Charge, the consumer charge and the fixed operating and investment charges are included in an initial charge, either wholly or to the desired extent, and the balance of the cost is carried in the consumption or commodity charge. This charge of course must be graded to the various sizes of meters or to capacities required. If this is done, it is practically a three part gas rate, although I believe that it is a little easier to understand and a little less complicated in billing. Probably the greatest difficulty with the adoption of this type of rate is that when it was first offered it was misunderstood and met with unwarranted failure through determined opposition. It was first suggested at a time when, because of war conditions, it was necessary to secure material increases in gas rates. Since it was attempted to use the service charge as the vehicle for the increased revenue to the company, the opposition was quite natural and of course very determined. This opposition still exists, largely I believe, because of the unfortunate coupling of the service charge with a necessary increase in gas rates. I am of the opinion, consequently, that it will be difficult to adopt this type of rate unless local conditions are quite favorable. However, with the proper amount of publicity, it should not be impossible to secure a favorable reception of this type of schedule, particularly since it can now be introduced with a commodity rate, the aggregate of which will not increase the total bills, except in the case of small consumers.

Apparently because of the opposition to the service or community charge, some gas companies have

adopted the plan of including this charge in the amount billed for the first few hundred feet of gas used. This device has been quite successful, although it is doubtful if all of the elements of the service charge have been included in the initial charge in such cases. However, there is no good reason why, if the entire service cost is not covered in the initial charge, the balance should not be covered in the commodity rate. This of course is avoiding the issue to some extent but it at least has the virtue of placing the charge for service more nearly on a cost basis than does the ordinary block rate.

### Quick Break Rate

Another type of rate which, with restrictions, will accomplish what is desired, is what might be termed the "quick break" rate. In this type of schedule all of the customer, the fixed operating and the distribution investment charges are included in the rate for the first few thousand cubic feet used per month. In place of the longer blocks of from 5,000 to 10,000 cubic feet which are now used in many of the existing schedules and in place of the gradual reduction from the primary rate in stages of 5 cents or 10 cents per M. cubic feet, the first block in the "quick break" type of rate is limited to about 2,500 cubic feet for capacities equivalent to that of a five light meter, and the rate per thousand cubic feet thereafter steps down decidedly from the primary rate. The thought behind this rate is that gas for cooking service should command approximately the price which is now being charged for this service, since existing rates as a general rule do not make gas for cooking prohibitive. For the possible added domestic uses, however, the cooking rate does at times become prohibitive. I believe this to be the case, for instance, with water heaters. It is true that we are selling water heaters under present gas rates but there is no question but that a much larger number of water heaters could be sold, if the gas rate applying to this service more nearly took into account the desirable features of the water heating load from a load factor standpoint and the further fact that the customer's fixed costs have been covered in the amount paid for cooking service. In the "quick break" rate the added block or blocks are made low enough to encourage the use of water heaters and other appliances and to increase the consumption of such appliances at a rate probably averaging somewhere between $1.00 and $1.20 per thousand cubic feet. The length of the blocks in this type of rate must of course be graded to take account of varying capacity requirements, as the fixed charges of course increase proportionately with increased capacities. This rate has the advantage of permitting all service to be metered through one meter, thus reducing investment as well as some of the operating expenses, and of course is as simple as the existing block rate. While it is not theoretically as accurate as the three part rate, it is accurate enough for practical purposes. This rate has the further advantage that it does not necessitate an increase to any class of consumers even though the cost analysis discloses that an increase may be warranted. This statement of course is based upon the thought that the company should be willing to make some sacrifice in immediate revenue in order to enjoy the advantage of a load building rate. In one case, however, where this form of rate has been applied the reduction in revenue was more imaginary than real, since it was found that the revenue from increased merchandise sales made up for the reduction in earnings taken through the rate change. The increased output resulting from the increased number of appliances made itself felt in a much shorter period than was at first anticipated. This was due to an intensive merchandising campaign, which was inaugurated shortly before the new rate was made effective so that the public was made aware of the voluntary reduction in the rate to be made by the company and at the same time was sold the idea of taking advantage of the change.

### Temporary Loss in Revenue

If it is desired to limit the immediate reduction in revenue due to the adoption of any of these forms of schedules, the rate can of course be filed as an optional rate with restrictions as to its availability. Another plan would be to make the change more gradual, probably at two or three different periods rather than at one time. However, unless the estimated reduction in revenue is alarmingly great, half-way measures are not advisable, since half-way measures will not develop a corresponding amount of new business. I believe that after a thorough cost analysis has been made and the type of rate decided upon, a change in the form of the general rate applying to all domestic consumers and consumption will in the long run be found to be most advantageous to the company and that a proper and intensive merchandising campaign can be made to offset to a large extent the immediate loss in revenue due to the change in rate. It should perhaps be pointed out that the cost analysis will disclose fixed charges which are surprisingly high and commodity or consumption charges which are relatively low. The sum of commodity charges and the production capacity costs will probably be found much lower than necessary to secure the domestic load. It this event I would advocate that a portion of the other fixed charges be included in the second and third blocks of the schedule and that an allowance be made to cover a portion of the deficiency in earnings from the smaller users.

### Industrial Rate

In my opinion a three-part rate is the best type of schedule for industrial purposes since it follows the cost curve accurately and can be made to include for any load factor and any consumption whatever may be the desired margin of profit. However, the general application of this type of rate to industrial business should not in my opinion prevent the adoption of special rates under special conditions. An examination of the load curve diagrams heretofore shown makes it clear for instance that there is no necessity whatever for assessing any fixed distribution operating expenses or distribution investment charges against gas service which is sold be-

tween the hours of eight o'clock in the evening and six o'clock in the morning and which is strictly limited to that period. In the case of any industrial load which can strictly limit itself to that period of operation there is no question but that gas can be sold at very little above holder and production capacity costs and still be sold at a profit and to the ultimate advantage of all consumers. I feel that if the same flexibility is permitted in designing gas rates as is quite common practice with electric rates in situations of this kind, the system load factor can be materially improved.

### The Results of Logical Rates

It seems unnecessary to attempt to show that logically designed gas rates will develop our output. It has been the history of the electric industry as well as of the gas industry that a reduction in rates almost invariably brings with it an increase in output. A careful analysis made by committees of the National Electric Light Association has shown that rate changes made which encourage the building up of the consumer's load factor are always more effective in increasing the output than a change made in the primary block. There is no reason why this should not apply to the gas industry. Furthermore, the experience in Kansas with the three part rate indicates a much greater output per consumer than with the ordinary block rate, and in addition shows considerable improvement in service conditions. A test of the "quick break" type of rate in one Illinois city showed a recovery of the original gross revenue in two months, as well as an increase in gas sold over the corresponding months for the previous year, an increase in the cubic feet sold per consumer and a decided increase in the gross merchandise sales. It is unfortunate that further data are not available on this situation. However, our knowledge of the results of the application of logically designed electric rates should satisfy us beyond question that the same result may be expected from the application of similar principles to gas rates. As in the case of the electric rate it is to be expected that such rate changes when made along logical lines will have a favorable effect upon net earnings as a whole, making it possible to make reductions in other schedules, and assisting materially in maintaining satisfactory public relations.

### Possibilities of Domestic Gas Business

All of you undoubtedly know the average annual consumption of various domestic appliances and are aware of the possibilities of load building from this class of consumption. Among domestic appliances which will add considerably to the consumption per meter without materially affecting the peak load are water heaters, house heating boilers, space heaters, garage heaters, gas refrigerators, gas heated washing and ironing machines, clothes dryers, incinerators and laundry stoves. The number of these appliances now in use is comparatively small and there is a very broad field for an increased number of these appliances as well as for increased consumption of such appliances as are now in use. From the standpoint of total consumption the house heating load is of course the most desirable, although its inherent load factor is not particularly good. A study of curves of individual house heating loads, however, shows that the house heating peak usually comes at an early hour of the day and before the peak load for cooking. As long, therefore, as the daily maximum hour is brought about by the cooking load, the house heating load may be considered as partially off-peak business, carrying necessarily its share of manufacturing capacity charges, but free to a certain extent from distribution capacity charges. This of course would not be true if the house heating load should be responsible for the peak hour.

However, by the time this condition is reached, we may have been fortunate enough to find offsetting seasonal business which can share with the house heating load such added capacity costs.

### Conclusion

Of necessity much has been said in this paper which has already been brought to your attention in previous papers. However, it does not appear that there is any harm in repetition judging by the failure of many companies to do anything in the way of establishing rates for industrial service or rates for domestic service, which take into account the question of load factor and time of use. If I may assume that the alarm has again been ringing, let us decide that it has not been ringing in vain. It is not suggested that the new rates be offered blindly. However, as previously pointed out, I do not believe that any one in the gas industry can justify the present tendency of reduced sales per consumer, unless he has made a thorough analysis of his costs and fairly considered possible rate changes designed to increase his output from a domestic as well as industrial standpoint along logical lines. Such a change need not be drastic, at least initially, and if the desired rate appears to involve too great an immediate reduction, the desired end can be reached either by making the change gradually or by limiting the availability of the new schedule to certain classes of consumption but still without discrimination. In this way much desirable business can be attached, ultimately perhaps justifying the establishing of the desired rate as a general rate.

It goes without saying that in most cases gas need not be sold strictly on a heating value basis. Its advantages are too well known to make this necessary. However, a proper cost analysis will show how far it is possible to go in adjusting our gas rates in order to attach business, which must be sold on a strictly competitive basis with the knowledge that any improvement in the system load factor will result in economies, which will eventually enable us to meet closer competition.

I am satisfied, furthermore, that logically designed gas rates would meet with the fullest approval of the regulatory commissions as long as it is evident that there is a profit on the increased sales. In the long run, such increased sales will necessarily result in benefit to all consumers. The Kansas Public Utilities Commission, for instance, has said:

"The gas business is not inherently different from the electric light and power business; and so far as the commission knows there is no light and power plant, privately or municipally owned, of any size and importance, which undertakes to supply its customers on a flat rate basis. If it so undertook, it would be doomed to failure from the start. To attempt to supply electric power customers on the basis charged residence lighting customers would drive every power customer from the line; on the other hand, to attempt to supply residence lighting on a basis of rates charged for power consumption would bring ruin to the company. What the gas companies need is a volume of business and this volume of business can not be attained on a flat rate basis."

The quotation is taken from a decision in a natural gas rate case and the commission of course referred to flat rates rather than block rates. However, it is evident from this quotation as well as from a perusal of the decision that the commission is fully convinced that gas rates should be designed on the same principles as electric rates, that a material increase in the volume of output will follow, and that this increase will result to the ultimate benefit of all consumers.

In the last analysis what we require is a proper return upon our investment. Under commission regulation we are just as much entitled to this in the gas department of our business as we are in the electric and are just as certain to receive it up to the point where our gas rates become prohibitive, and above the value of the service rendered. Generally speaking, existing rates are not prohibitive for cooking service. As far as some other domestic uses are concerned, I believe that present rates are to some extent prohibitive and above the consumer's idea of the value of the service. The sooner this condition is remedied, the sooner, in my judgment, will we find the gas business just as profitable and satisfactory as the electric business. With satisfactory rates and the increased output resulting from them, our costs should gradually be lowered, allowing further reduction in a more or less continuous cycle. Moreover the greater the extent by which we are able to lower our costs and rates, the greater will be the field which is open to gas service and the better will gas be enabled to compete successfully with other fuels at those points where competition is keenest.

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## FIRE PREVENTION

(Continued from page 366)

It has often been said that the basement of the home is a place "where things accumulate," but this phrase should no longer apply. Modern conveniences now make it possible for the basement to be "a part of the living home."

The coal pile is being replaced by automatic heat, thereby eliminating the coal bins and the ashes.

Water is heated by gas instead of coal.

The laundry room work is being made easier by gas and electric appliances.

All of these conveniences can be called necessary basic appliances which make life more enjoyable and household duties less laborious.

### Incinerator Fast Finding Favor

A new basic appliance which is fast finding favor is the gas-fired incinerator which will burn up table waste, as well as rubbish. The addition of this appliance helps make the basement "a part of the living home" and takes it out of the accumulation class.

Besides solving this disposal problem in the home, an incinerator keeps the whole house clean because without it dust and rubbish are not only deposited in the basement, but are actually carried back to the rest of the home.

In order to keep the home clean, the basement should also be kept clean. Dirt and dust must be wiped out at its source—the gas-fired incinerator makes it possible.

Incinerators are not new; in fact, their use has been known for twenty years. Unfortunately, these early so-called "incinerators" were only rubbish burners; table waste could not be disposed of in them without a great deal of smoke or odor.

The last five years has given gas-fired incinerators a new opportunity. They are now surviving and gaining favor on every hand simply because the foremost machine which is leading the field does efficiently burn garbage as well as rubbish.

The leading gas company laboratories have approved such a machine and recommended it for household purposes.

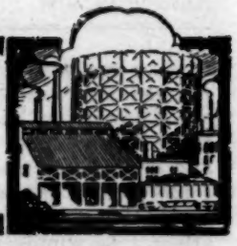
This machine is equipped with a combination drier and combustion pipe which enables the material to become dehydrated and then completely burned out. It is equipped with a dumping grate so that ash or tin cans or broken bottles may be transferred from the machine to the pan below. It has a self-feeding crematory bowl which feeds the burning material to the efficient burner, especially designed for the purpose. This accounts for the fact that the efficiency in design and construction makes its operation practically automatic and solves the waste disposal problem in the home without giving off objectionable smoke and odor.

This type of incinerator is portable, easily installed and being used by the renter as well as the home owner, and offers a new and important use for gas, as well as new and profitable appliance sale.

The need for sanitary disposal is ever present in the home. The accepted product for the solution of the problem is here.

You know how often opportunity knocks at your door—a word to the wise is sufficient. Get busy.

# NEWS OF THE GAS INDUSTRY



### Northwest Regional Conference of Pacific Coast Gas Association

The Pacific Coast Gas Association will hold its Northwest Regional Conference in Spokane, Washington, on May 6 and 7, with headquarters at the Hotel Davenport.

Mr. W. S. Yard, president of the association, will preside at the conference and the occasion will be used by committee chairmen to finally consolidate their ideas in preparation for their convention reports. In addition there will be a general session, at which a number of topics of interest to companies in the Pacific Northwest will be discussed, including the problem of meeting electric competition. This is especially serious in Washington and Oregon, where hydro-electric development is advanced beyond its market possibilities, causing the electric companies to fix rates which would appear ridiculously low to utility men in other parts of the country.

Mr. J. L. Stone, vice-president and general manager of the Spokane Gas & Fuel Company, and a director of the association, is in charge of the local arrangements.

### Pacific Coast Gas Association

The joint meeting of the Pacific Coast Gas Association and the Arizona Utilities Association, which bids fair to become an annual event, will be held in Flagstaff, Arizona, on Thursday and Friday, May 26 and 27. Those from California who attended the meeting at Tucson last year will be most enthusiastic about the Flagstaff meeting, for at Tucson they learned that the Arizona utility men know how to work hard, play hard, and are pastmasters in the art of entertaining.

Flagstaff is in the center of some of the most marvelous scenery in the country. A few hours' drive brings one to the extinct volcanoes, lava beds, ice caves, cliff dwellings, San Francisco Peaks, Mormon Lake, Montezuma's Wall, etc. A three days' trip is planned to Lee's Ferry and to the Glen Canyon dam site on the Colorado River, which is now in the national limelight.

Mr. George T. Herrington, general manager of the Flagstaff Electric Light Company, is chairman of the entertainment committee; Claude S. Webber, superintendent of the Tucson Gas, Electric Light & Power Company, is chairman of the program committee; W. C. Hornberger, assistant general manager of the Central Arizona Light & Power Company, is chairman of the attendance committee, while Ben Ferguson, secretary of the Arizona Utilities Association, is chairman of the finance committee.

It is expected that the attendance at the meeting will include public utility men from Arizona, Colorado, New Mexico and California.

* * *

### Commercial Department of Dayton Power & Light Co. Forms Local Chapter of American Society for Steel Treating

Dayton, O.—Organizing the local chapter of any society demands considerable effort upon the part of everyone concerned, and being sold on the idea that Dayton should have a chapter in the American Society for Steel Treating, it was then thought best to allow the Industrial Gas Engineers to sell membership instead of gas for a few weeks and thus assure success.

At the request of the Dayton Power and Light Company, the National Association sent over the assistant secretary, and upon his arrival more than forty members were ready to enter the chapter. With this nucleus, and an offer to pay $100 a year toward the maintenance of the organization, it became possible to interest all of those people in Dayton who are engaged in steel treating, and it can now be reported that the Gas Department made possible a chapter comprising 93 individual memberships, together with nine sustaining memberships, including the companies, or a total of 102 memberships in all, to whom, through the company's ample financing, every benefit available to a steel treater may now be offered within their own city.

Mr. H. H. Skinner, gas sales manager, was temporary chairman in charge of organization and now becomes chairman of the membership committee and a member of the executive organization. Mr. F. M. Reiter, the company's industrial engineer, will fill the position of secretary and treasurer.

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### Change in A. G. A. Address

The American Gas Association announces that on and after April 18, 1927, the headquarters office will be located in the new Graybar Building, 420 Lexington avenue, New York City, 43rd and 44th Streets.

The new office will be located on the fifth floor, with entrance through Room 550. The new telephone numbers will be Lexington 1407, 1408 and 1409.

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### Commission Grants Petition to Rochester Gas & Electric Corporation

Albany. — The Public Service Commission granted the petition of the Rochester Gas & Electric Corporation for permission to extend its gas plant in the village and town of Webster, and approved the exercise of franchises therefor granted by the town and village boards.

### Buried Village Dating Back to 1645 Bared in Greenpoint as Biggest Gas Main Is Laid

Brooklyn, N. Y.—Laborers of the Brooklyn Union Gas Company, digging under the earth at Morgan street, Greenpoint, to lay Brooklyn's biggest gas main, turned up a buried village and pier dating back to the Colonial days of 1645, a little Dutch-Norman city and pier that had been completely buried for more than 100 years.

Part of a rotted wooden desk, part of an old rope walk and what had been a dust-covered road, stones from an old house and the ribs of a small boat—these the laborers' picks disturbed. But their interest was in modern gas mains and not in archaeological finds. So they laid their mains—the biggest that Brooklyn ever had—under Morgan avenue, connected with the gas transmission system at Scholes street, and near Grand street they came across another section of the old rope walk. Again it meant nothing to them.

#### Ditmas Explains

But Charles A. Ditmas, president of the Kings County Historical Society, cared nothing at all for the gas main, but much about the historical interest in what the unconscious archaeologists had unearthed.

"That part of Greenpoint," he said, "was granted to Dirck Volckertsen, a Norman, coming of French and probably Swedish parentage. He located on the north side of Bushwick Creek, which flowed between Bushwick and Brooklyn proper. He was a ship carpenter by trade and probably had a shipyard on the river front for small boats. He lived in an old stone house which was demolished many years ago. He probably had a dock there.

#### Buried for a Century

"Nearly a century later we find it in possession of Captain Peter Prea, who obtained part of it by marriage and the rest by purchase from the three sons of the original Volckertsen and his heirs. The purchase was made in 1719. Prea's parents were French Huguenots from Dieppe, but he himself was born in Leyden, Holland, where his parents at the time sojourned. He became captain of the Bushwick Troop of Horse and died in 1740, leaving his estate to his children. It was eventually filled in and covered up, and has now been buried for at least a century."

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### Bernard J. Mullaney Heads Safety Advisers

Chicago.—Bernard J. Mullaney, vice-president of the Peoples Gas Light and Coke Company, has been elected president and chairman of the advisory board of the Chicago Safety Council.

Other members of the advisory board are Charles Piez, T. W. Robinson, A. A. Sprague, Stuyvesant Peabody, G. A. Richardson, G. W. Dixon, James E. MacMurray, Samuel M. Hastings, T. S. Hammond, H. M. Lytle, C. L. Rice, H. L. Iesz, M. W. Bridges and Charles MacDonald.

NOW!
Our Third Reduction in Rates Within One Year
The following rates go into effect on May bills:—
1st 100 cu. feet $1.02 .12 .90
Next 200 cu. feet .26 each .02 .24
Next 200 cu. feet .23 each .02 .21
Next 1600 cu. feet .20 each .02 .18
Next 1000 cu. feet .19 each .02 .17
Next 17,000 cu. feet .17 each .02 .15
All over 20,000 cu. feet 15 each .02 13
$33.00
Gas Heater
Incidentally, now would be a mighty good time to install a gas heater.
Why not phone for our salesman?
House Heater
Let Gas Be Your Servant!
Phone us today for information
The Service Number
is
NORwood 0179
$70.00
Norwood Gas Company
THE "WIFE SAVING" STATION

*Norwood Gas Company's Method of Announcement of Rate Reduction In the Newspapers*

### Louis Stotz Joins Sales Organization of the National Refrigerating Company

Louis Stotz has joined the sales organization of the National Refrigerating Company of New Haven. This company is a subsidiary of the Winchester Repeating Arms Company, and manufactures the Ice-O-Lator, a gas-fired refrigerator. Mr. Stotz, who is one of the best known commercial gas men in the country, has already started work for the company, and will follow up all inquiries that have been made relative to the Ice-O-Lator.

Mr. Stotz was for many years secretary of the National Commercial Gas Association, and later assistant secretary-manager of the American Gas Association. For the past two years he has been connected with the U. S. Tool Company of Ampere, N. J., manufacturers of the Dester safety lighter for gas ranges. He will have headquarters at New Haven, from which point he will travel and establish contact with gas companies interested in the Ice-O-Lator.

John C. Douglas has been appointed Pacific Coast representative for the Ice-O-Lator. Mr. Douglas is well known in the specialty trade along the Pacific Coast and has been closely associated in selling to the public utility companies for the past ten years.

* * *

### G. I. Vincent Speaks Before Engineering Society

G. I. Vincent, vice-president and manager of the Syracuse Lighting Company, Inc., spoke at a largely attended meeting of the Society of Engineers of Eastern New York in the Rensselaer Polytechnic Institute, Troy. His subject was "An Old Industry at a New Threshold"—meaning the gas industry.

Mr. Vincent traced the history of the manufactured gas industry down to the beginning of the electric industry, and then considered the two in parallel. Finally he discussed the future of both industries, from utilization and engineering standpoints.

Following the address there was a discussion in which many of the engineers present took part.

### Promotions in Westchester Lighting Organization

Recent changes in the personnel of Westchester Lighting Company are interesting in the fact that all the men progressed through the ranks of the company from positions of messenger, stenographer, bookkeeper or office boy to their present positions.

*Frank M. Nilan*

Frank M. Nilan, former assistant to Mr. William Judson Clark, vice-president, is now assistant secretary of the company; Albert L. Spears has been promoted from general office cashier and paymaster to assistant treasurer. Thomas B. Murtha, formerly of the President's office, is now assistant director of the personnel bureau. Mr. J. P. McLaughlin came up the ladder from bookkeeper to assistant auditor and has now been promoted to chief clerk.

Mr. Nilan's election to his position as an officer of the company was made known at a meeting of the board of directors in New York. The event was unusual, inasmuch as it meant the elevation to an officership of a young man, hardly out of his "twenties."

Mr. Nilan came to the company on May 4, 1914. His first position was that of messenger.

* * *

### American Gas Furnace Co. Issues New Bulletin

American Gas Furnace Company of Elizabeth, New Jersey, has just issued Bulletin No. 5, covering their line of melting furnaces.

Each line is illustrated with complete descriptions and capacities, with a considerable amount of additional valuable information of particular interest to the users of such furnaces.

A copy of the bulletin will be sent on request.

* * *

### George E. Whitwell Appointed General Sales Manager

Following the recent resignation of Merrill E. Skinner, commercial manager of the Duquesne Light Company, a subsidiary of the Philadelphia Company, Pittsburgh, Pa., a general sales department to include that of the light company, the commercial department of the Equitable Gas Company and the Equitable Sales Company was created, and George E. Whitwell was appointed general sales manager, effective April 1. Mr. Skinner left to accept a similar position with the Mohawk and Hudson Power Corporation, with headquarters at Albany, N. Y.

Mr. Whitwell comes of a family of public utility men of Washington, D. C., where he was born in 1892. He was graduated from Massachusetts Institute of Technology in 1915 and until June, 1918, became analytical research chemist with the Anaconda Copper Mining Company, leaving that field to serve with the forces of Uncle Sam as a private in the photographic air service of the Army in France until April, 1919. In June, 1919, he joined the Washington State Geological Survey and in June, 1920, became research investigator of the Seattle Lighting Company.

He taught chemical engineering for three years at the University of Washington, jointly serving as consulting engineer for the Tacoma Gas and Fuel Company, and in October, 1922, became vice-president of the Young-Whitwell Gas Process Company, formed by himself and D. J. Young, manager of the Tacoma concern, the two having developed a new back run carburetted water gas process, a development which is now used by 300 manufactured gas concerns in America and Europe.

In May, 1924, Mr. Whitwell became manager of the new business department of the Tacoma Gas and Fuel Company and in May, 1925, became manager of the gas department of the Byllesby Engineering and Management Corporation. In the fall of 1926 he became general manager of the Equitable Gas Company, which position he held until the creation of the new department which he now heads.

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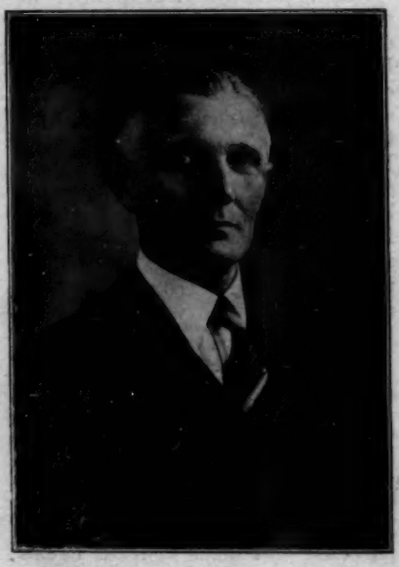
### ABUNDANT GAS APRIL 1ST

#### Pavilion Company Has Started Making Artificial Product—Inspecting Meters

Warsaw, N. Y.—Assurances are given by the Pavilion Natural Gas Company that artificial gas will be turned into the mains on April 1st. The company now has a man inspecting meters, asking people how much gas they would like to use and offering advice as to its use. Many of the meters have gotten out of order and are being replaced. The artificial gas plant at Pavilion has been manufacturing gas for some time and everything is being done to insure an abundant and reliable supply of gas starting April 1st. Householders living in the more elevated parts of the village have not been seriously bothered with the shortage of natural gas except for a few short intervals, but in most of the village the supply has been extremely unreliable if not lacking altogether.



*Albert A. Spears*